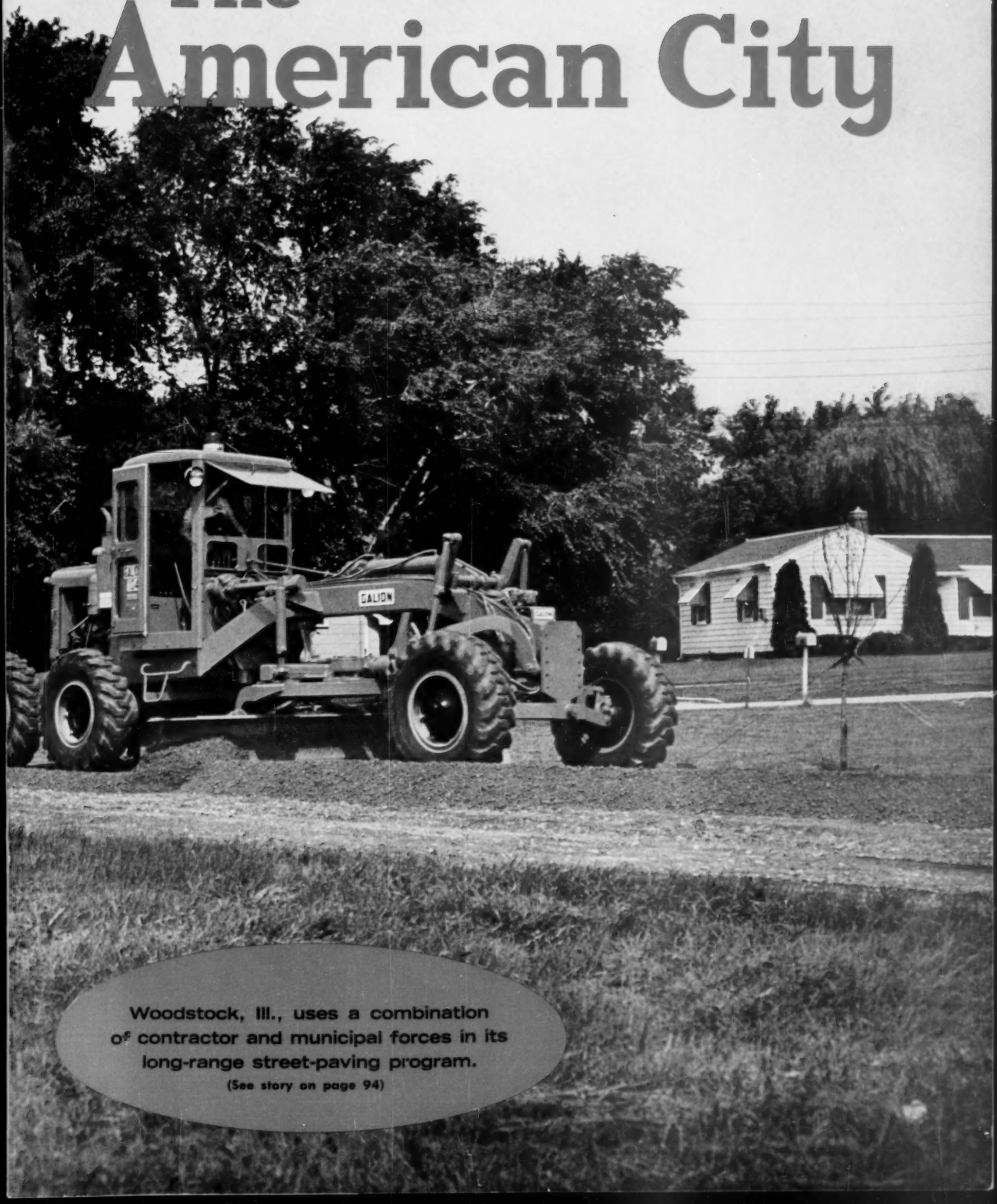
FEBRUARY 1960

The American City



Woodstock, Ill., uses a combination of contractor and municipal forces in its long-range street-paving program.

(See story on page 94)

General Contractor EDENWALD CONTRACTING COMPANY Asphalt Contractor METROPOLITAN ASPHALT CORP

Texaco Asphaltic Concrete pavement on East River Drive, laid at night under flood lights to avoid interrupting heavy daytime traffic. Queensboro Bridge in background.

NEW YORK CITY'S EAST RIVER DRIVE TESTS A PAVEMENT'S DURABILITY

East River Drive, along the edge of Manhattan Island in New York City, carries steady streams of fast-moving traffic to and from bridges and tunnels.

Three sections of this busy thoroughfare are served by resilient, rugged Texaco Asphaltic Concrete paving of the plant-mixed type. New York City heads an impressive list of 1,500 U. S. cities, under whose traffic Texaco-paved streets have demonstrated their durability and low upkeep cost.

Particularly important in *municipal* paving projects is the speed with which Texaco Asphaltic Concrete is laid and opened to traffic. As a result, local business, residents and motorists are subjected to a minimum of inconvenience and delay.

In addition to such heavy-duty pavements as Asphaltic Concrete and Sheet Asphalt, Texaco Asphalt products are used in a variety of intermediate and low-cost types of construction for streets, airports and parking areas. Among these is a type which is exactly suited in durability and cost to your community's paving requirements. For helpful information on all of these types, mail in the accompanying coupon.

TEXACO INC., Asphalt Sales Div., 135 E. 42nd Street, New York 17

Boston 16, Chicago 4, Denver 1, Houston 1, Jacksonville 1,
Minneapolis 3, Philadelphia 2, Richmond 11

TEXACO
REG. T. M.

TEXACO ASPHALT

Texaco Inc., Asphalt Sales,
135 East 42nd Street,
New York 17, N. Y.

Please send me your two brochures containing helpful information on heavy-duty, intermediate and low-cost types of Asphalt construction for streets, airports and parking areas.

Name ..... **Position** .....

Associated with .....

Address .....

The American City

FEBRUARY 1960

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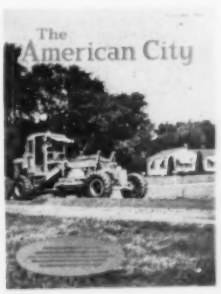
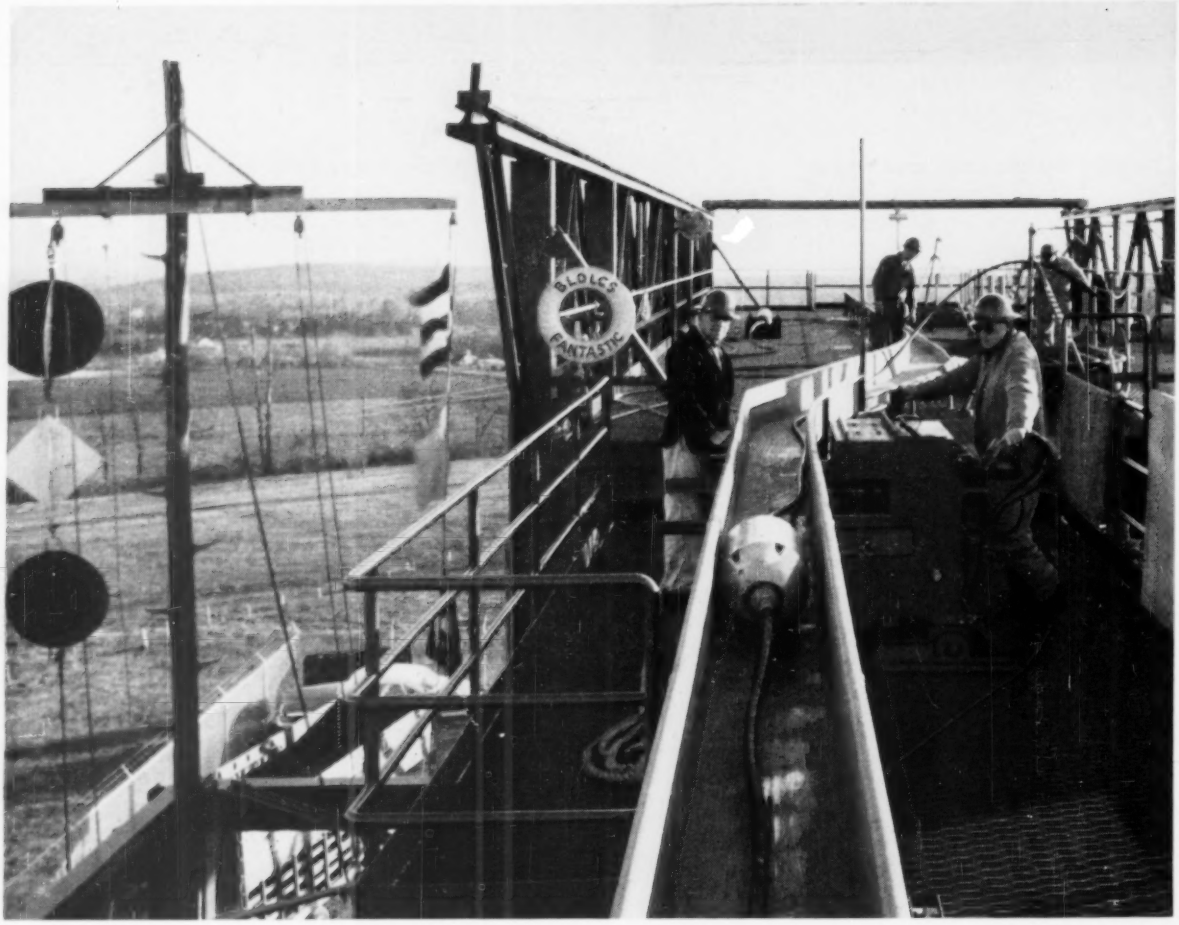


Cover Picture

A new subdivision-control ordinance, adopted by Woodstock, Ill., requiring fully improved streets provided the stimulus for a long-range street-improvement program that will eventually give the entire city high-grade, all-weather street surfacing. The program utilizes city forces for all preparatory work and contractor crews for the asphalt paving. The picture shows the city's street crew shaping the roadbed prior to the contract surfacing. The complete story begins on page 94.



Engineers study section of cable containing dummy amplifier being payed out. Life preserver inscription stands for "Bell Laboratories Dry Land Cable Ship Fantastic"

★ Come aboard the FANTASTIC! ★

A ship that never sails helps Bell System engineers devise the best way to lay undersea telephone cables

The telephone cables which now connect America with Europe, Hawaii and other distant places have proved enormously successful.

Soon more will be needed—to link other continents, and to handle the ever-rising volume of overseas calls. But the new and lighter cables now being tested call for entirely new cable-laying techniques and equipment.

To save time and money, and permit studies of the problem under controlled conditions, a mock-up of a cable-laying ship—dubbed the *Fantastic*—has been built on a New Jersey hilltop some twenty-eight miles from the nearest salt water. There, most days, you will find Bell Laboratories engineers busily testing the new methods and equipment they have devised.

Winches whine as long sections of cable are pulled up from the "hold" and payed out "overboard" as if the *Fantastic* were truly at sea. Flying gaily from a yardarm are maritime signals warning other vessels to stay clear.

Elsewhere in the Laboratories, experiments show how to grip the cable and control its speed, what happens as it sinks into the sea, how fast it should be payed out to fit the ocean bottom snugly. Still other studies plot the hills and valleys of the ocean floor where the cable will eventually be laid.

The result—telephone service across the ocean as good as your own local service. It is progress like this which is the purpose of our constant research and experimentation in all fields of communications.

BELL TELEPHONE SYSTEM

Volume 75 Number 2

The American City

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ASSOCIATED PUBLICATIONS

Contractors and Engineers		OVERVIEW
Municipal Index	MART	AMERICAN SCHOOL AND UNIVERSITY

LETTERS TO THE EDITOR

". . . the Gift of Good Will"

Enclosed is a copy of the current issue of our little weekly news bulletin. At the beginning you will note that I have taken the liberty of using a quotation from your splendid editorial in December.

For the past nearly ten years we have used each week a quotation which has appealed to us, ranging from one from Mang-tsze, a Chinese philosopher, who lived several centuries before Christ, down to the present.

As a reader of THE AMERICAN CITY for more than 40 years, I regard your publication as an invaluable service institution for our city.

RAY W. WILSON
City Manager
Phoenix, Ariz.

EDITOR'S NOTE: Phoenix is the only city in the nation to be a two-time winner of the All-America City award.

Sewage Lagoons

We are interested to read Mr. Webber's analysis of sewage lagoons ("Can You Use a Sewage Lagoon?" pp. 175-7 Nov. 1959). We agree generally with his conclusions, but take exception to one sentence:

"Sewage lagoons compare favorably with other methods of primary treatment."

In North Dakota we feel that sewage lagoons compare favorably with other methods of *secondary* treatment. BOD reduction in the open-weather months is in the neighborhood of 95-97%, while during the winter we find an average of about 65% BOD reduction.

The Missouri River Basin Engineering Health Council has prepared a set of instructions on waste stabilization lagoons. Copies of these standards are on file in the state health department of the ten Missouri River basin states.

W. VAN HEUVELEN
Executive Officer
State Department of Health
Bismarck, N. D.

Traffic Fellowships

The Bureau of Highway Traffic at Yale University announces fellowships for the 1960-61 academic year starting in September 1960 and terminating the following May. They provide a living stipend of $1,400 disbursed at the rate of $175 a month for a period of eight months, while a student is enrolled. The fellowships also provide the tuition of $800, for a total value of $2,200 for each fellowship. They are made available to the Bureau through grants from the Automotive Safety Foundation, the Esso Safety Foundation, the Insurance Institute for Highway Safety and the James S. Kemper Foundation.

Closing date for filing applications is March 1, 1960. Previous experience in traffic work is not essential to become a successful candidate for a fellowship or scholarship when other qualifications are demonstrated. Applications for admission and further information may be obtained by writing to the undersigned.

FRED W. HURD, *Director*
Bureau of Highway Traffic
Yale University
New Haven, Conn.

To Mall or Not to Mall

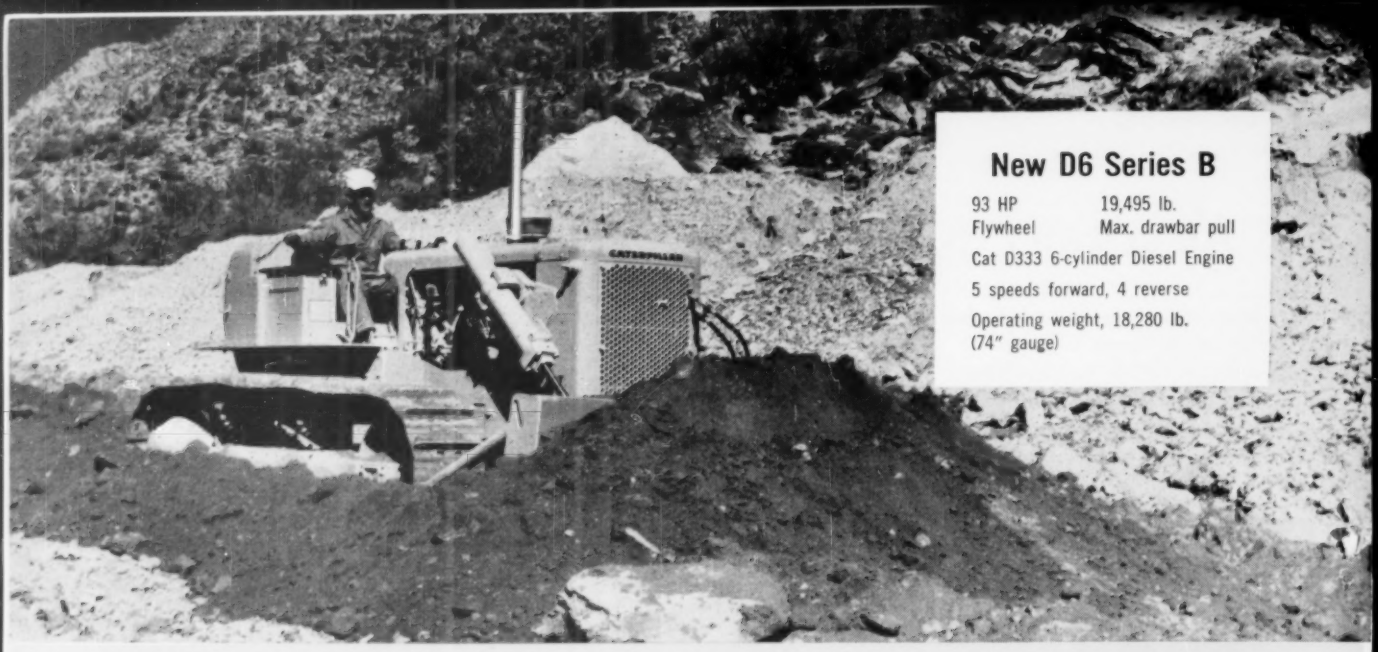
Recent reports in THE AMERICAN CITY and other publications regarding pedestrian malls in downtown business districts cannot help but bring to mind similar waves of "innovations" such as golf driving ranges, race tracks, etc. Any town which did not have one at one time or another, somehow seemed to have considered itself underprivileged. Those of us who deal with this problem every day are a bit concerned about the manner in which it is frequently approached.

Of late the pedestrian mall concept has been abused as a publicity gimmick by which merchants hope to boost sales. As would be expected, the trials are disappointing and weaken chances for substantial downtown improvement.

The mall idea itself is very old, in fact it is nothing but the old-time market square—found through the ages all over the world—adapted to our particular conditions. Whether or not a mall should be considered in a given business district will depend on various factors. Perhaps there are as many communities in the United States which would benefit by such a facility as there are communities which would gain nothing by it.

To avoid disappointments, any group of downtown interests considering a mall should make appropriate arrangements for the development of a city-wide compre-

(Continued on page 18)



New D6 Series B

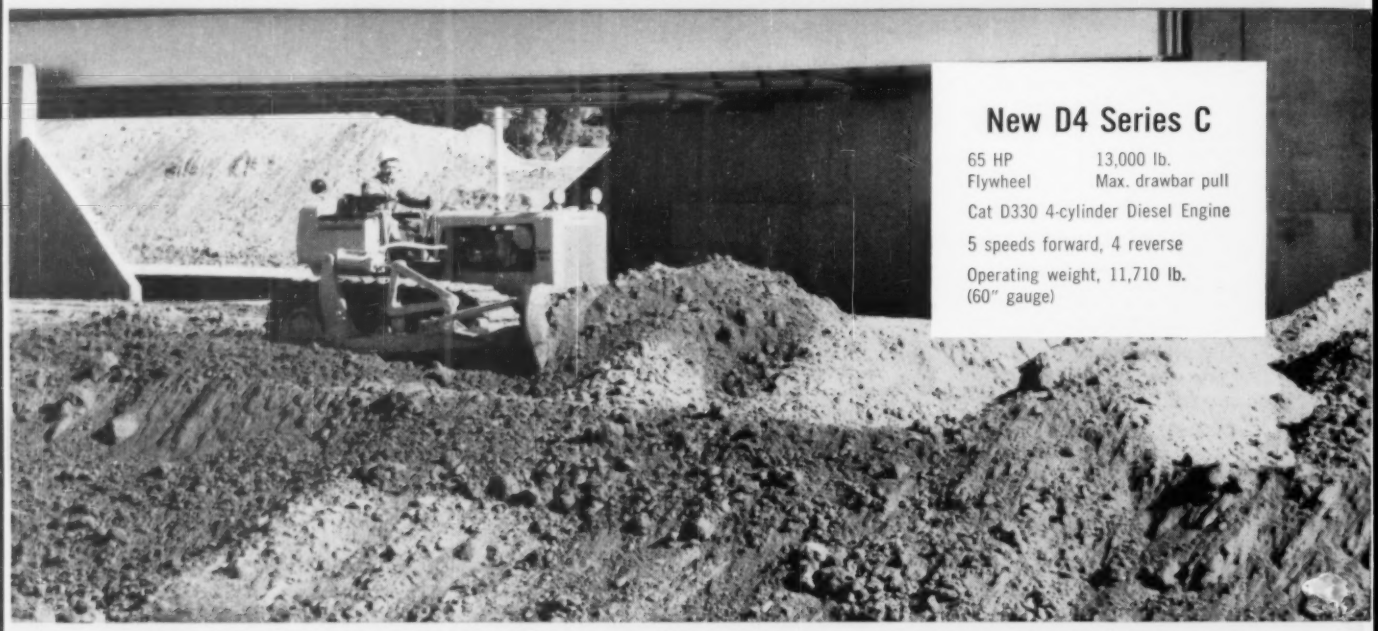
93 HP Flywheel — 19,495 lb. Max. drawbar pull

Cat D333 6-cylinder Diesel Engine

5 speeds forward, 4 reverse

Operating weight, 18,280 lb. (74″ gauge)

RUGGED MATCHED ATTACHMENTS for the D6 and D4 include Bulldozers, Tool Bar, Scraper, Rock Rakes, Winches, K/G Blade, Rippers and others.



New D4 Series C

65 HP Flywheel — 13,000 lb. Max. drawbar pull

Cat D330 4-cylinder Diesel Engine

5 speeds forward, 4 reverse

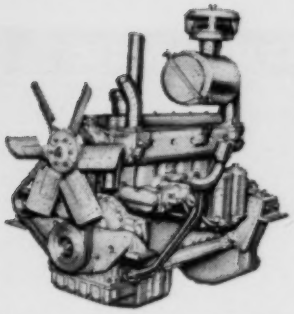
Operating weight, 11,710 lb. (60″ gauge)

IMPROVED STARTING ENGINE for both tractors has recoil starter for fast starts. Also 12-volt in-seat starting available. 24-volt direct electric starting optional.

CATERPILLAR ANNOUNCES the

completely redesigned to give you more production per tax dollar

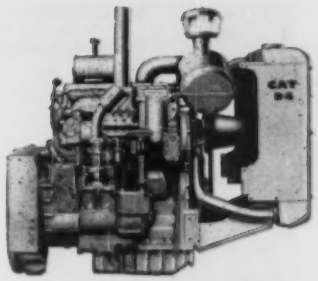
There's no time like now to upgrade your equipment spread. These two new tractors not only look different—they are different. Each, in its own class, answers your needs for higher production and greater operating economy. Some of their important new features are described on these pages. In addition to these improvements, each machine provides other famous Caterpillar features... the dry-type air cleaner,



D6 93 HP 6-cylinder Engine
Maximum drawbar pull, 19,495 lb. The D333 Engine provides power with dependability for a long life of economical operation.

New Caterpillar Diesel Engines deliver 25% more lugging ability

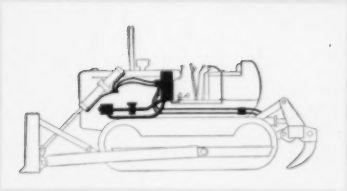
For the D6 and D4, two completely new Cat Diesel Engines. 25% more lugging ability. New compactness with new ruggedness. Famous Cat fuel injection pumps in new, easily serviceable housing. New direct acting governor that makes quick fuel adjustments, picks up loads fast. New, improved gasoline starting engine.



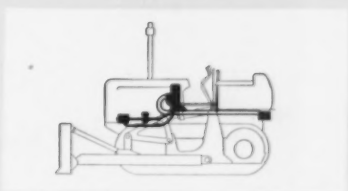
D4 65 HP 4-cylinder Engine
Maximum drawbar pull, 13,000 lb. New design of the D330 results in smooth, vibration-free performance in all speed ranges.

New integral hydraulic systems put more power where you need it

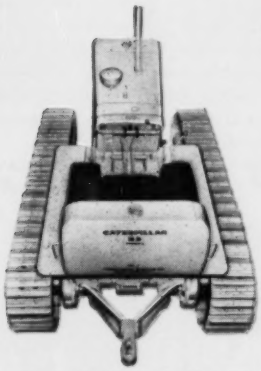
More work power at the tools—that's one of the big advantages of these new Cat hydraulic systems. Under-the-hood mounting of tank, pump and valves permits convenient routing of hydraulic lines to bulldozer or implement cylinders, frees front and rear for mounted equipment. Center-pivoted cylinder mounting on D6 gives increased blade lift/drop range for greater production. Hydraulic control system provides hand control for bulldozer and/or ripper, foot control for tilt cylinder on D6.



D6 Integral Hydraulic System
No. 165 Hydraulic Control for bulldozer
54 GPM Pump—1500 PSI
No. 143 Hydraulic Control for No. 6 Tool Bar
29 GPM Pump—1700 PSI



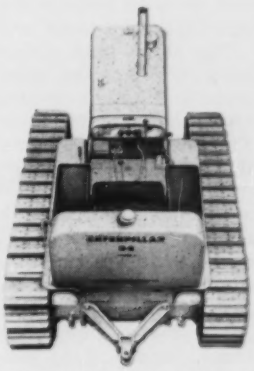
D4 Integral Hydraulic System
No. 143 Hydraulic Control with:
29 GPM Pump—1700 PSI for bulldozers
17 GPM Pump—1700 PSI for tool bars



D6 operator's compartment

New operator convenience and comfort in co-ordinated compartments

The cockpits are all new. Controls are co-ordinated to make one motion flow into the next, reducing hand movements and speeding every operation. Forward-reverse lever (new on the D4) is next to the operator's right hand to speed 'dozer cycle times. Short-travel transmission speed selector shifts gears easily, quickly. Boosters for steering clutches save muscles . . . increase efficiency.



D4 operator's compartment

New D4 Series C and D6 Series B Tractors

hydraulic track adjusters, lifetime lubricated track rollers, the oil clutch, the forward-reverse lever. Your Caterpillar Dealer will be happy to give you the complete facts about both the new D6 and the new D4 and demonstrate them on any of your jobs. The tougher, the better.

Caterpillar Tractor Co., General Offices, Peoria, Illinois, U. S. A.

CATERPILLAR

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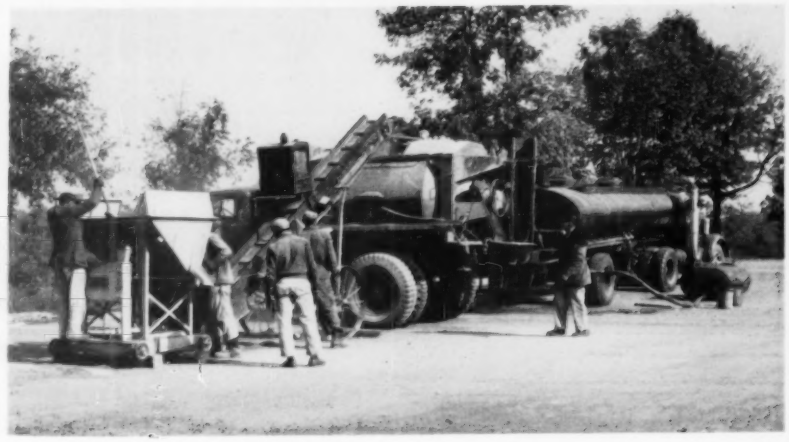
BORN OF RESEARCH
PROVED IN THE FIELD



This makeshift arrangement was used to mix the bituminous slurry since the job was small and experimental.

Slurry Seal on Trial in Princeton, N. J.

As far as we know, the trial section of asphalt-emulsion slurry-seal surface coat placed on two Princeton streets last October represents the first use of this material on municipal streets within the State of New Jersey. Our interest in slurry seal came about through our search for a more economical and certainly more acceptable type of surface treatment than the usual seal coating or crack pouring.

The slurry mix consisted of a blend of ¼-inch-minus crusher-dust, clean plaster sand and emulsified asphalt Bitumuls mixing grade DM-1 or DM-1-h (Asphalt Institute Specifications SS-1 or SS-1-h). From 20% to 25% emulsified asphalt was used in the mix.

Preparation consisted of sweeping the street with a mechanical sweeper, blowing out the cracks, and applying a tack coat of emulsified asphalt diluted one part to three parts of water. A distributor applied the tack coat at the rate of 0.2 gallons of dilution per square yard.

We mixed the slurry in a standard transit-mix truck, hauled it to the site and applied it with a squeegee spreader box towed by the transit-mix truck. Application was about ⅛-inch thick.

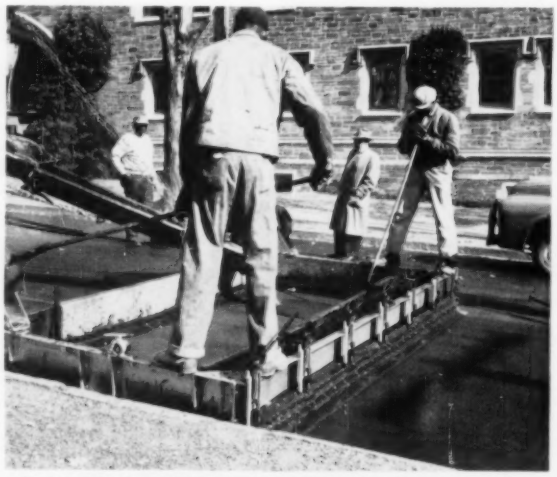
Results

Total area of the two streets covered amounted to about 8,000 square yards and the total cost was approximately $2,400, or 30 cents a square yard. However, this was a small job, and because it was new we had extra manpower. We feel that the cost could be reduced to 20 cents a square yard on a 50,000-square-yard operation. Rochester, N. Y., on a large-scale operation involving the placing of up to 11,000 square yards of slurry seal per day, did so at a cost of eight cents a square yard. In 1957 Rochester surfaced 1,142,612 square yards with slurry seal (THE AMERICAN CITY, August 1958, page 101).

We went ahead with our test knowing that October weather was not the best. This proved to be the case, resulting in the loss of about ⅔ of the surfacing. Cool weather resulted in slow curing and we had to open one stretch to traffic before it was properly cured. To compound our troubles, heavy rains came the following day, and in about one week traffic had raveled off most of the slurry material.

One large section was exposed to the sun and was well cured before being opened to traffic. We plan to watch this stretch closely over the winter and, if it holds up as expected, will undertake more of this work but under more favorable conditions. Despite the loss of much of our work because of adverse conditions, we feel slurry seal may provide the solution to our crack sealing and surfacing problem.

ARTHUR T. BROKAW
Borough Engineer
Princeton, N. J.



The screed, towed by the transit-mix truck, placed about ⅛-inch of the slurry over the street surface.

. . . is cut to a minimum when you treat gravel roads with Sterling Rock Salt!

As aggregate gets scarcer and rises steadily in price, more and more highway departments are using economical Sterling Rock Salt to treat gravel roads. This treatment, which binds aggregate and other road materials tightly together, more than pays for itself through savings in aggregate alone. Additional savings are possible because damage to the wearing course is greatly reduced, and roads usually require nothing more than routine blading every spring.

Special equipment is no longer needed for effective salt treatment of gravel roads. Last year, International Salt Company introduced a simple, practical 7-step method which is fully described in a free booklet, "Better Roads." Send today for your free copy, and learn how Sterling Rock Salt treatment can work in your area.

Service and research are the extras in
STERLING ROCK SALT
INTERNATIONAL SALT COMPANY, INC.

International Salt Company, Inc.
Department AC-260
Scranton 2, Pennsylvania

☐ Please send free booklet, *Better Roads.*

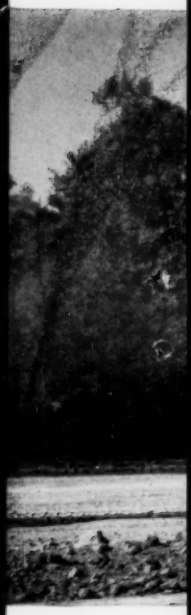
☐ Have a Sterling representative call.

*Name*_____

*Address*_____

*City*_____ *State*_____

NOW! FOUR NEW MOTOR GRADERS



that will put you out front for the BIG JOBS in the 60's

BIGGER • HEAVIER • STRONGER

ECONOMICAL TO OPERATE AND MAINTAIN • CONSTANT MESH TRANSMISSION

NEW MODELS	8-D	9-D	10-D	11-D
HORSEPOWER	83	100	125	160

PEAK PERFORMANCE AND ECONOMY FEATURES THAT PUT THESE MODELS OUT FRONT!

see Huber-Warco for the finest in grading and rolling equipment

HUBER-WARCO COMPANY

Single member frame designed to absorb heaviest shocks and strains. High arch design improves visibility, provides more room to maneuver blade.

Ruggedly built circle with three big wearing shoes. Designed to protect gear teeth from all loads except turning force.

Circle turn completely gear driven.

Weight where it counts. Two-thirds of machine weight on drive wheels.

Easy, positive steering with hydraulic booster activated by six pounds' hand pressure.

90-degree blade control on either side without leaving cab.

360-degree blade rotation without removing scarifier teeth.

Power sliding moldboard, optional, for faster work around abutments, stakes, and other obstructions.

Full-floating rear axle carries no machine weight.

Large, roomy deck with all controls within easy reach.

Deluxe cab, optional, has 18% more glass for greater visibility.

Six speeds forward and reverse; optional creeper gear adds three more speeds in each direction.

Moving one lever changes direction in same gear.

Other constant mesh transmission features include (1) easy shifting, including range shift, at all speeds (2) shift rails interlocked to prevent multiple engagement (3) pressure flood lubrication (4) ball and tapered roller bearings throughout transmission and final drive (5) helical transmission gears for quiet operation (6) machine-cut, case-hardened alloy steel transmission shafts and gears.

MARION, OHIO
U. S. A.

HUBER
WARCO

TANDEM ROLLERS

MOTOR GRADERS

MAINTAINER

3-WHEEL ROLLERS

This year plant the new trees that fit best into your landscaping plans ...and your budget!

EACH of Cole's patented new Honeylocusts was developed, through many years of selective breeding, for distinctly different characteristics of form, color and growth: SUNBURST for its brilliant, two-color beauty; IMPERIAL for its graceful, spreading habit; SKYLINE for its stately formal shape; and MAJESTIC for its symmetrical, compact form. Now you can select the exact types you need to fit your plans for street, roadside or park plantings. Their lacey, sun-dappled shade benefits grasses and SUNBURST will add a colorful accent to your landscape.

Spectacular SUNBURST
(Plant Patent No. 1313)
The sensational, new two-color tree with brilliant yellow foliage on branch tips. It appears to burst with bloom all summer long.

Cole's New IMPERIAL
(Plant Patent No. 1605)
The graceful, spreading, new Honeylocust that grows strong and straight *without staking*. A favorite of landscape men and tree experts.

Cole's new SKYLINE
(Plant Patent No. 1619)
Distinctive, stately variety with strong trunk and shapely crown. *Needs no staking*. Dark green foliage has heavy, leathery texture.

Cole trees help solve your landscaping and maintenance problems

WHILE each of these new varieties is unique, they have all the best qualities of the Honeylocust. They transplant easily, require no staking, are exceptionally strong, hardy and relatively fast growing. Of many thousands grown, only a very few have exhibited small, embryo thorns which drop off or are absorbed by the growing tissue of the tree. They are widely adaptable to almost any soil or climate, readily withstand ice and storm damage, drought and poor drainage. They cause no ground-litter, require no fall clean-up or leaf removal. You'll never buy trees that cost you less for maintenance, damage or replacement.

Cole assures you high quality and dependable supply of 360 varieties of trees, evergreens and deciduous shrubs. Our modern, mechanized, large-scale operations and ideal soil conditions produce healthy plants, with more compact root systems, at lower cost. We will be glad to quote on your requirements.

Cole's New MAJESTIC
(Plant Patent No. 1534)
A clean, graceful, symmetrically-branched tree. Produces a straight, sturdy trunk and compact crown *without staking or special trimming*.

Cole's New TALLHEDGE
(Plant Patent No. 1388)
A thornless, glossy Columnar Buckthorn that grows to 12 feet. Ideal for tall, narrow, dense hedges or screens. Bears colorful berries.

OHIO'S LARGEST WHOLESALE NURSERY

THE COLE NURSERY CO.
PAINESVILLE, OHIO

Suburban living evidently doesn't appeal to Samson.

Zoo Uses A Hydraulic Crane To Handle Gorillas Gently

However both gorillas made the trip without complaint.

Two gorillas—Sambo and Samson by name—recently moved from their old mid-Milwaukee residence (zoo) to their beautiful and spacious suburban zoological "estate."

But to move the temperamental pair in their specially-built, barred cages was a ticklish problem. Sambo and Samson weigh a total of 700 pounds, all muscle, and neither likes to be jostled. Zoo Director George Speidel solved it to their satisfaction by using the County Park Commission's Hydrocrane.

Gently lifting the partitioned, portable cage onto the truck and quietly unloading it at the gorilla's new home, the Bucyrus-Erie truck-mounted crane evoked hardly a "whisper or cage-rattling complaint" from either of the suburban-bound residents.

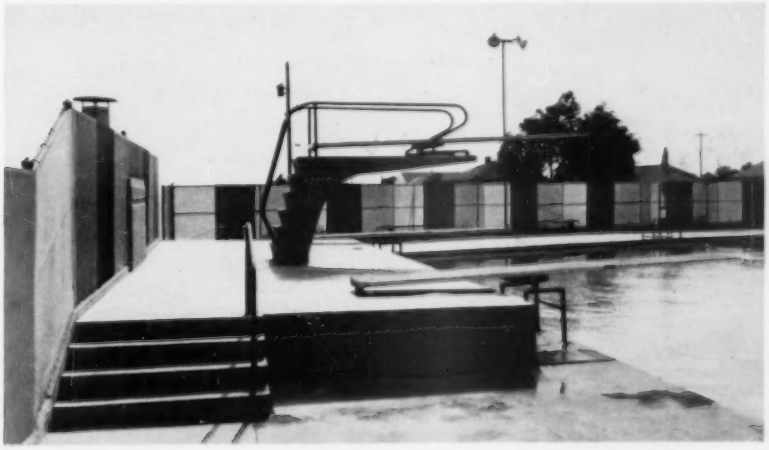
For Mr. Speidel, this assignment is nothing new. Last July, he used the Hydrocrane to move two nervous young rhinoceroses into their new home. "Baby" animals such as these, weighing a total of 4,300 pounds, are worth $15,000 each.

Plastic Wall Extends Swimming Pool Season

Late summer breezes are cool in Colorado—making many sunny days too chilly for swimming in an unprotected pool. R. W. Ferguson, director of the Metropolitan Recreation District #50, Westminister, Colo., prolongs the swimming season with a new windscreen fence made of translucent panels of reinforced fiber glass. The barrier also helps to keep debris from the swimming-pool area.

Since the pool area was already enclosed with a chain link fence, district workmen merely added the corrugated panels, precut to fit each fence section, by attaching them to the chain link with self-tapping metal screws. On each post they welded an angle-iron support for further strength. The plastic panels are shatterproof.

The bright blue, yellow and red panels, supplied by Structoglas, Inc., Cleveland, Ohio, add beauty to the pool's overall appearance, relieving the drabness that is characteristic of most swimming areas. Mr. Ferguson reports that because of benefits gained, the District is installing similar plastic wind barriers around new indoor-outdoor swimming pools.



This six-foot decorative plastic wind screen has made late summer swimming much more popular in Denver.

Sanitary landfill helps Concord, N. H.,

Caterpillar No. 955 Traxcavator

Here you see the benefit of sanitary landfill to Concord, N. H. Sanitary landfill eliminates odors, insects and vermin. It eliminates the cost of sorting refuse. It costs less than incineration and, best of all, the Caterpillar equipment used for this operation can be used for other city work. Many cities are turning to sanitary landfill to get a cleaner city and to turn waste land into useful, salable property.

get a new park... a cleaner city

handles 3,600 yards of refuse per month

The old city dump in Concord, New Hampshire, is a thing of the past. In its place is an attractive new city park (shown below) and a sanitary landfill (left) that will eventually become a valuable industrial site. Every one of the 28,000 citizens of Concord will benefit from this modern way to handle refuse.

Key to the success of the landfill operation—which covers an area of approximately four acres adjacent to an industrial area—is the Caterpillar No. 955 Traxcavator which does the work. It is a 1½ cu. yd. 70 HP machine that is designed for quick, easy operation and fast cycle time. It handles 3,600 cubic yards of refuse a month. Total cost to the city of Concord for the sanitary landfill is only $0.94 per person, per year. Costs of the entire refuse disposal operation—pickup trucks, administration, wages, etc.—come to only $3.65 per capita, annually.

There are three Traxcavators in the Caterpillar line—the No. 933 (52 HP, 1⅛ cu. yd. bucket capacity), the No. 977 (100 HP, 2¼ cu. yd.) and the No. 955 which is being used so successfully at Concord. All three can be equipped with the exclusive Caterpillar side dump bucket. And all three can handle many more jobs—excavation, fill, snow removal, loading, street and alley work.

Your nearby Caterpillar Dealer can give you complete facts on the economics of sanitary landfill with Caterpillar machines. He's always handy when you need parts or service and he can help you select the right machine. Get in touch with him.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

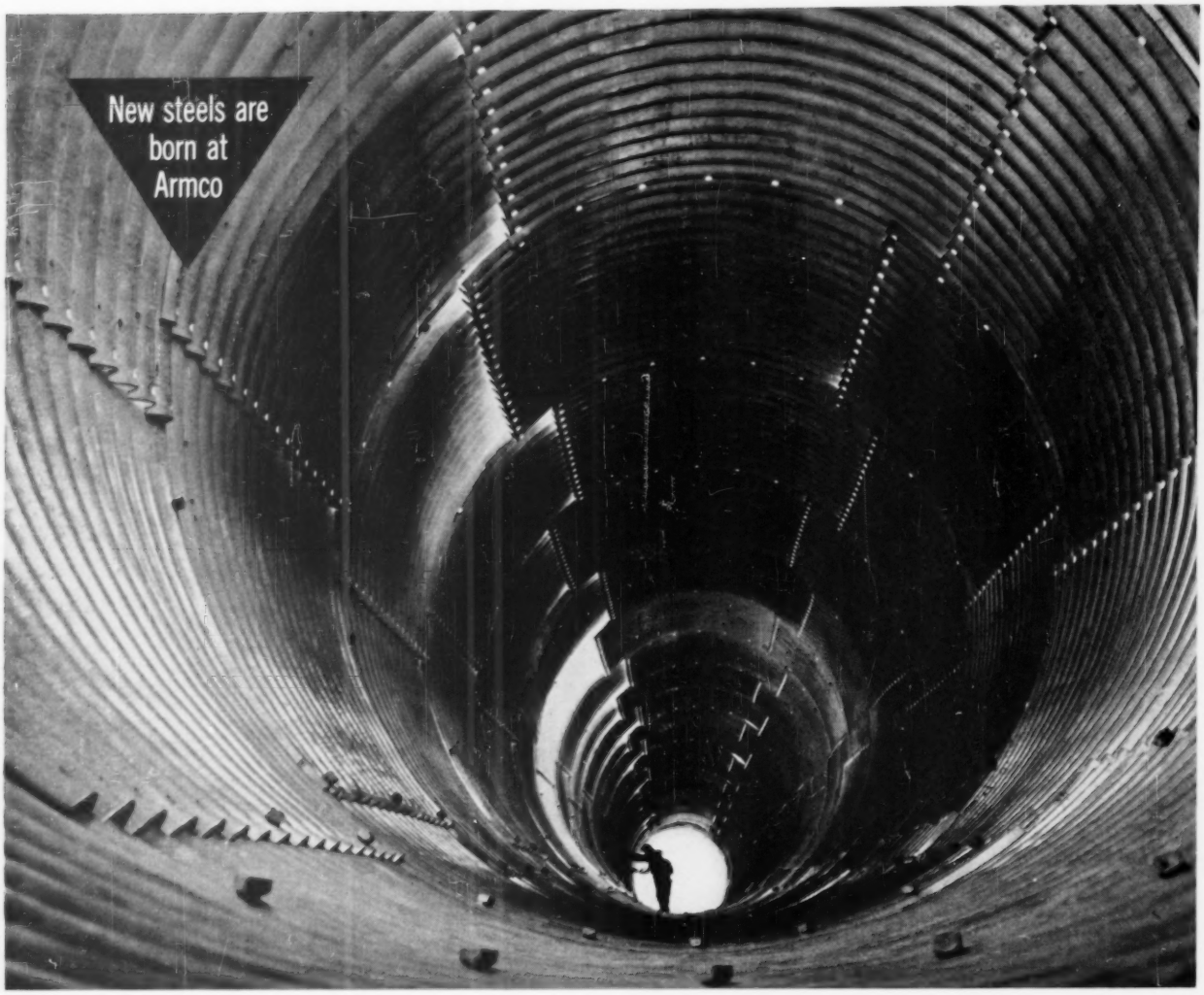
At Concord, N. H., refuse is dumped, compacted and covered lightly. When a layer six feet thick has been put down, a two-foot layer of soil is spread over it. Concord picks up refuse in residential areas once every two weeks... in business areas off Main Street, once every week... on Main Street, once a day.

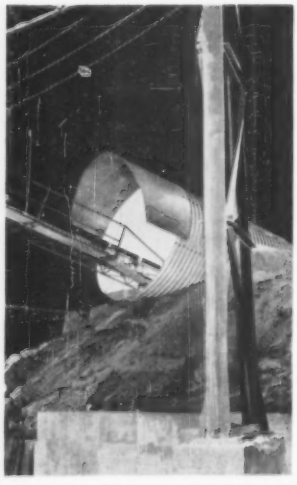
CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

YOUR TAXPAYERS GET THEIR MONEY'S WORTH WITH CAT-BUILT MACHINES

THIS BIG ARMCO





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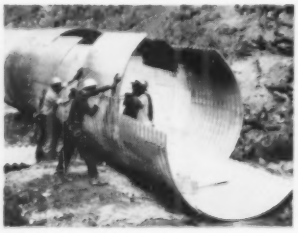

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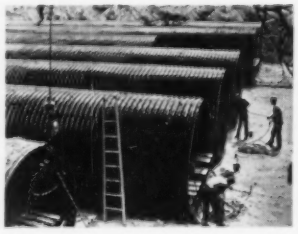


3

4

1. This conveyor tunnel is an Armco MULTI-PLATE Pipe. 2. Easy-to-handle MULTI-PLATE sections are bolted together quickly. 3. Battery of bituminous-coated MULTI-PLATE Structures provides large drainage area. 4. Pipe-Arch is one of a variety of shapes of MULTI-PLATE Structures. 5. MULTI-PLATE Pipe serves as pedestrian underpass in railroad yard.

DRAINAGE STRUCTURE

won't crack or break

Properly installed, an Armco MULTI-PLATE® Drainage Structure functions as a *single unit*—for good. The curved, corrugated plates are bolted together to make an integral structure. Transverse earth pressures can't disjoint it. Frost action won't crack it. Imposed loads will not break it. This means an Armco Structure will be as strong, as straight and as sound 20, 30, 40 or more years from now as the day it was installed.

Best of all, Armco MULTI-PLATE is the *most economical* answer for large size drainage structures, underpasses, conduits and similar needs, time after time. Actual job service records prove it.

You can get complete facts easily. Use the coupon for your copy of the Armco MULTI-PLATE Catalog. If you want to discuss the application of MULTI-PLATE to your specific problem, our representative will be glad to show you factual case histories. Armco Drainage & Metal Products, Inc., 4320 Curtis Street, Middletown, Ohio.

SEND FOR FREE CATALOG

TWENTY PAGES OF AUTHORITATIVE DATA

ARMCO DRAINAGE & METAL PRODUCTS, INC.
Department A
4320 Curtis Street, Middletown, Ohio

Rush my copy of the Armco MULTI-PLATE Catalog.
☐ Have representative call.

Name_____

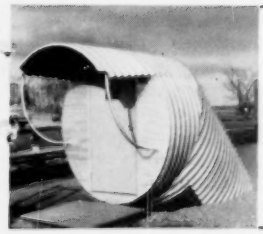
Title_____

Organization_____

Street or box number_____

City_____ Zone_____

State_____



Armco MULTI-PLATE Structures are part of a complete line of corrugated metal drainage structures offered by Armco. Others include Armco Corrugated Metal Pipe and Pipe-Arch, SMOOTH-FLO® Sewer Pipe, and Perforated Subdrainage Pipe. MULTI-PLATE is used where large openings are required. Diameters range from 60" to 180".

5

ARMCO DRAINAGE & METAL PRODUCTS

Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company • The Armco International Corporation • Union Wire Rope Corporation

(Continued from page 5)

hensive planning program of which downtown improvements would constitute an integral part. Obviously, a CBD mall, without proper thoroughfare approaches well integrated in the street system of the urban area and supplemented by adequate terminal parking facilities, would be as useless as an ocean liner in the desert. If a comprehensive city plan suggests that a pedestrian mall might be feasible, detailed studies must be made of physical design, economic feasibility, cost of improvements, methods of implementation and organization.

Assuming one or several pedestrian malls appear feasible from all these standpoints, it then becomes a matter of molding the numerous interest groups which exist in any CBD into a unified action group. This is by no means an easy task.

The city-wide planning should, of course, be carried out by an appropriate department of the city government. The specific CBD studies should be the responsibility of the downtown merchants and owners primarily. (For both undertakings competent planners should be retained—do-it-yourself versions invariably lead to fiascos!)

W. G. Roeseler
Ladislas Segoe & Associates
Cincinnati, Ohio

Aid to County Government

I would like to express my sincere appreciation and interest in the many fine articles which have been published in recent issues of The American City. Articles on saline water conversion, rubbish collection and disposal, and new techniques in the treatment, conservation and disposal of sewage and industrial wastes have been especially interesting and valuable to me. I have also obtained pertinent information and data from the technical material presented in your advertisements.

Because of the wide coverage of your articles, the magazine is read with great interest by members of my staff. I have also observed copies in the offices of other county and civic officers throughout this area.

Please accept my compliments for an outstanding job which has helped me to keep abreast of the rapid changes in municipal engineering works, so important to a county officer.

Arthur Pickett
Division Engineer
Industrial Waste Division
Los Angeles County, Calif.

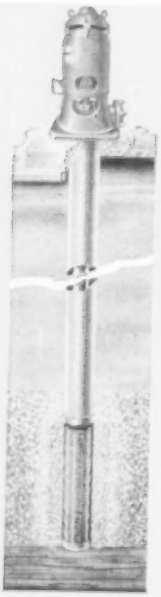
"The Greatest Year—"

Your editorial in the November issue ("The Greatest Year of My Life," p. 7) made a lot of sense. It was especially interesting to me since I heard this same event mentioned during the American Public Works Association Congress in Seattle, this past September.

You may be interested in an impression we gained of the APWA Congress this year. It seemed to us that there were more professionally minded public works officials in attendance than we have ever seen at this congress in the past ten years. In fact, we could go farther and state it seemed to us that the preponderance of the men were not only very professional in their approach, but were actually personally and unselfishly dedicated to the work they were doing.

For this reason your editorial in

(Continued on page 23)



Why take a chance? Inferior, inexpensive strainers can only mean costly, time consuming replacement. When you install a Cook Well Strainer you are guaranteed years of superior service attested by thousands of installations that are still producing water at their original G.P.M. The exclusive design of Cook Strainers permits the most direct and unobstructed water way from the water bearing formation into the well. The V-shaped slot allows for maximum development which is accomplished by the removal of silt, alluvium, clay and fine sand from around the outside of the strainer. This provides a natural filter of coarser and more uniform sand and gravel.

sustained performance
YEAR after YEAR with
a strainer by COOK

Investigate all the advantages of Cook Strainers. They are available in Red Brass, Silicone Bronze, Armco Iron, or Stainless Steel; in as many different slot sizes as required. Eight to twenty-four hours delivery often possible by telephoning Cincinnati HUmboldt 1-8800.

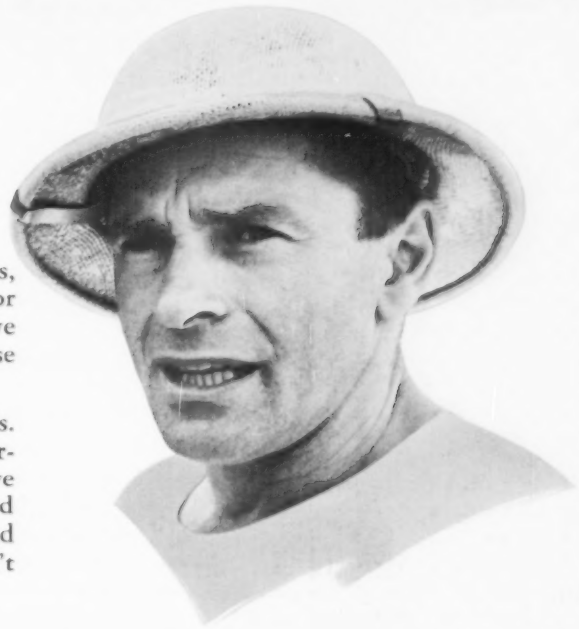
COOK WELL STRAINER CO.
6330 Glenway Avenue • Cincinnati 11, Ohio
WORLD'S LEADING NAME IN WELL STRAINERS

4 who bought Ford Tractors . . . and *WHY*

"Price"

says Jackson

president of "Pools of Distinction,"
Jacksonville Beach, Florida.



"We style and custom build swimming pools of all sizes, 15′ x 30′ and up," says Mr. Jackson. "Our Ford tractor digs and shapes the cavity with a backhoe. Then we use the loader to stack earth around the walls and raise the pool level.

"We figure Ford saves us over $100 a pool," he adds. "We're very pleased with our dollar savings in operation and maintenance costs. But these were benefits we learned about by experience. What attracted me to Ford in the first place was price. Comparing features and work capacity with others on the market, I couldn't find anything else to match Ford."

PRICE? THESE ARE THE FACTS WITH FORD*

Ford Workmaster Tractors—$330 Under Average

(Comparison power range—34 to 47 engine HP)

Ford Model 621 tractor's retail list price is $63 less than its nearest competitor among 10 other utility tractors, and $330 less than the average price for all 10—seven of them having less than Ford's 45 engine HP. Ford's price of $48 per engine HP is $5 less than its nearest competitor, and $13 less than the average for all 10.

Ford Powermaster Tractors—$1,138 Under Average

(Comparison power range—51 to 72.5 engine HP)

Ford Model 821 tractor's retail list price is $667 less than its nearest competitor among five other utility tractors, and $1,138 less than the average price for all five. Ford's price of $39 for each of its 62.5 engine HP is $12 less than the No. 2 tractor, and $19 per HP less than the average for all five.

Ford Diesel Tractors—$409 Under Average

Diesel engines are a factory-installed option for all series of Ford tractors. In each power class, Ford costs less than all comparably equipped competitors. Each Ford diesel option costs only $420 more than the same Ford tractor in a gasoline model. Among the nine other more popular diesel tractors, the average mark-up for diesel as compared to gasoline models is $829. Ford's mark-up is $409 less than the average for these other diesels, and $130 less than its nearest competitor.

Ford Industrial Tractors—$474 Under Average

(Comparison power range—51 to 72.5 engine HP)

Ford Model 1821 tractor's retail list price is almost the same as one other industrial tractor in its power class ($3 less, to be exact), but it is $474 less than the average price of the five others in this class. Ford's price of $49 per engine HP is a dollar less than the No. 2 tractor and $8 less than the average for all five. Perhaps even more important, when all of these units are equipped with loaders, Ford is first in breakaway, a close second in rated lift capacity and the leader by a big margin in overall productivity. Ford moved 13 tons of material an hour more than its nearest tested competitor!

*All comparisons are based on tractors equipped comparably to the Ford models cited. Retail list prices are F. O. B. factory and will result, of course, in variations of delivery price according to point of purchase. Comparisons are based on the most recent published data held by Ford at the time of printing, and are believed to be an accurate reflection of suggested retail list prices before addition of shipping charges, state taxes, etc.

4 who bought Ford Tractors . . . and *WHY*

"Dependability"

says *John A Behnken*

president of Behnken Coal and Materials Company of New Athens, Illinois.

"One operator with Ford loads out 200 tons of limestone in 8 hours," Mr. Behnken says. "That's a $600 payload and twice the amount four men used to load in four days. Ford loading efficiency saves coal customers $1.40 a ton. And we gain at least 50c a ton price advantage on quarry materials because fast loading lets us stockpile.

"But probably the biggest thing to me—the reason I'll always buy Fords—is dependability. I've got one tractor 14 years old and another one 10 years old. They've averaged 25,000 tons of rock, sand and limestone, and 6,000 yards of dirt a year ever since.

"Both have been in constant service and with just about everybody among our 30 people operating them at one time or another," he continues. "Yet we've never had a major repair and never had a parts replacement involving either engine!"

DEPENDABILITY? THESE ARE THE FACTS WITH FORD

Over Two Million Ford Tractors

In manufacturing as in most other fields, there's no substitute for experience to produce machines giving the years of dependable performance described by Mr. Behnken and thousands of other Ford tractor owners. Ford has more tractor experience than any other company, today is well on the way toward its three-millionth tractor.

World's First Mass-Produced Tractor

In 1917 the world saw its first Fordson. During the next decade it saw more than 700,000 of them—some three-fourths of all U.S. tractor production. In 1939 Ford introduced built-in hydraulic systems with its model 9N Ford tractor. Sixteen years later Ford produced its one-millionth tractor with revolutionary three-point hitch and hydraulic system.

Birth of the "Red Tigers"

In 1952 Ford produced the first of the "Red Tiger" engines which still today are such a vital part of Ford tractor dependability, Since that time—more than three-quarter million engines ago – they've been refined, given more power, improved in many ways. But each has added to the Ford fund of experience which goes into the production of today's—and tomorrow's—Ford tractors.

Only Tractor Maker with Auto Experience

Ford is the only member of the tractor field with ready access to the production experience, the depth of research and the foresighted engineering of the auto industry. Ford's new and exclusive Select-O-Speed transmission, for instance, drew heavily on the experience gained with planetary gearsets in many millions of Ford autos. Ford Tractor and Implement people are quick to adapt all proven processes and economies to their own production . . . benefits which loom big among the many reasons for Ford's consistently high quality, Ford's traditional low cost.

4 who bought Ford Tractors . . . and *WHY*

"Versatility"

says *Carroll Blackden*

president of Krete Kraft Concrete Products Company of North Hampton, New Hampshire.

"Our Ford tractor and loader paid for itself in less than a year," says Mr. Blackden, whose company is the largest producer of concrete septic tanks in New England. "It enabled us to handle easily a 20% increase in production.

"Considering the constant heavy use this Ford tractor gets, it is a real tribute to its rugged design that our maintenance costs have been so very small. But I believe the biggest Ford feature is versatility. Our tractor works about half-time loading aggregate and pouring cement, about half-time storing and truck-loading distribution boxes, tank covers, etc.

"In addition," Mr. Blackden says, "the unit is used for occasional work in home construction, and for snow removal at the plant about 10 days a year. It's the steadiest worker on the job and the most versatile piece of equipment we have."

VERSATILITY? THESE ARE THE FACTS WITH FORD

Wide Range of Tractors

Ford offers a line of tractors with power and equipment for almost any materials handling or grounds maintenance job. Six different Workmasters, five Powermasters and five Ford Industrial tractors—all with diesel engine options which in effect double the selection to 32 models. They range from Special Utility models—for drawbar operations and work not needing hydraulic systems—up through fully equipped tractors with the new Select-O-Speed transmission and two-speed power take-off. Ford also offers Utility and All Purpose models of the big Fordson Power Major Diesel, the new Fordson Dexta Diesel, and both Standard and High Clearance models of the new Ford Offset tractor for nurserymen and landscapers. With Ford you choose your weight, your power, your tractor equipment and your work capacity . . . select exactly the right tractor for *your* job.

Wide Range of Basic Attachments

You'll find exactly the right Ford attachment for your job, too. Loaders with 1,000 to 2,500-lb. rated capacity; 10 ft., 12 ft. and 14 ft. backhoes; 6′ or 7′ front and rear blades; 65″ to 80″ rollover and box type scrapers; tiller rakes; 60″ and 100″ rotary cutters; 6′ and 7′ cutter bar mowers; 6′ and 8′ lime and fertilizer spreaders; cordwood saws, posthole diggers and many other attachments designed to save time, men and money on dozens of jobs.

And an Ever-Growing List of Specialized Equipment

Your Ford Tractor and Equipment dealer also sells many other attachments for Ford tractors. Brooms, winches, fork lifts, air compressors, side booms, sprayers, aerating tools, rollers, trenchers, pumps, reel mowers, compactors, portable welders . . . the list seems almost endless, and in almost every case fulfills a real need in replacing costly hand labor. Just give Ford a try. You'll soon find it's the busiest worker on your job.

4 who bought Ford Tractors . . . and *WHY*

"Service"

says *Carmen Oliver*

partner, Oliver Bros. Landscaping of Tonawanda, New York.

"We take over landscaping jobs two or three inches from finished grade," Mr. Oliver says, "and spread top soil, rough grade, backfill foundations, finish grade, seed and fertilize. Three Fords with loaders, blades and other attachments are operated 10 to 12 hours a day, six days a week.

"Ford has cut our operating costs at least 50%," he adds, "and in 24 years of operation—the combined total of the four Fords we've owned—we've never yet had any significant down time.

"We practice our own preventative maintenance and dealer service is seldom needed. When we *do* need our dealer, though, he always comes through for us. The service is excellent and you can understand how important that is to us when you watch how much Fords are a part of our day-to-day operation. We just couldn't afford any major down time."

SERVICE? THESE ARE THE FACTS WITH FORD

Wherever You Are, Ford's Not Far

In every state, in almost every county in the United States, there's a dealer, distributor or manufacturing plant for the Tractor and Implement Division of Ford Motor Company. You're only a few hours, at most, from dealer parts stocks . . . only a phone call away from the even bigger stocks held in reserve by Ford's 29 Distributors and Sales Districts.

Ford Reputation on the Line

When you buy Ford tractors and equipment, you also receive the "job security" of an authorized Ford Tractor dealer's parts and service warranty. You're also buying the future bonus of Ford's excellent trade-in values.

See Your Dealer Soon

These are just a few of the many reasons why Fords are replaced with Fords, and why more companies add Ford to their equipment every week. Owner satisfaction stems not just from the product, but to a large extent from the man who sells it and keeps it working. Have you talked to your Ford Tractor and Equipment dealer lately? He's selling the most basic job needs—economy, dependability, versatility and service. He's selling satisfaction. Get yours right away!

TRACTOR AND IMPLEMENT DIVISION • FORD MOTOR COMPANY • BIRMINGHAM, MICHIGAN

Ford

INDUSTRIAL TRACTORS AND EQUIPMENT

(Continued from page 18)

recognition of this was very good to see.

I think that the stigma often associated with officials in the municipal engineering field is disappearing and there is a growing recognition of the professional standards they themselves are maintaining.

ORVILLE C. HOGNANDER
Vice-President
G. H. Tennant Company
Minneapolis, Minn.

How Tucson Tests Drunken Drivers

In Tucson, Ariz., the intoxicated driver pleads guilty if he fails the police department's almost foolproof drunk-driver test.

The department uses a movie camera to record the actions of the drunk driving suspect. The "set" used by the department is a narrow passageway in the police station. The camera is focused on the hallway, and sound equipment and floodlights are turned on. The suspect is then asked to pronounce "Methodist," "Episcopal," and "electricity"—three words that are considered reliable tongue-twisters.

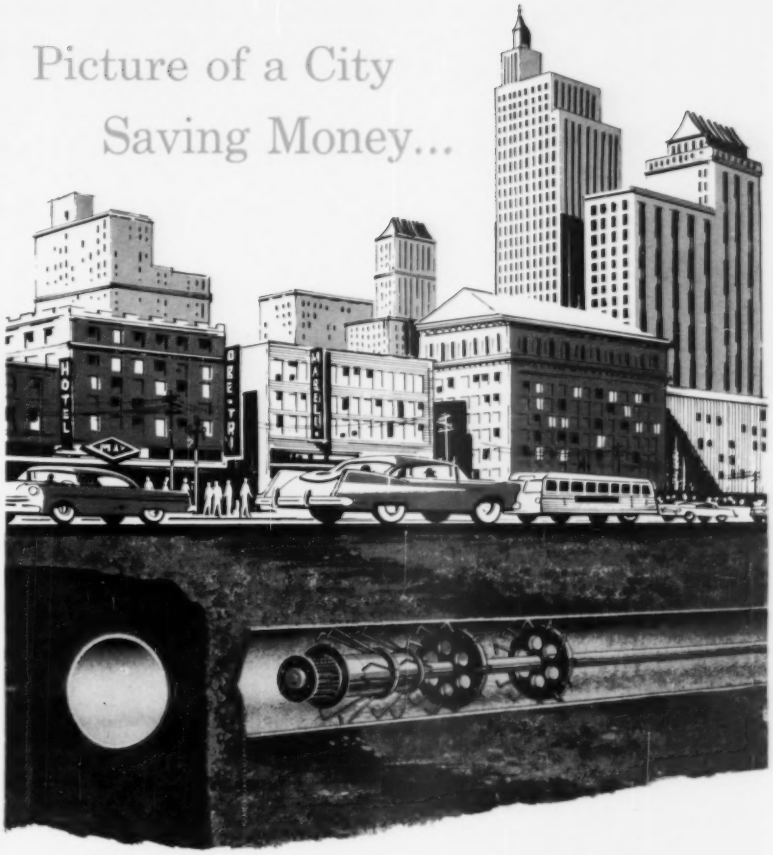
If he manages to get by that hurdle he is then asked to repeat "Around the rugged rock the ragged rascal ran." Police note that at this point the suspect usually goes in for a little ad-libbing. After this test, he is asked to walk a straight line, close his eyes while touching the tip of his nose with his finger, and pick a few coins off the floor. Everything is faithfully recorded on 100 feet of film and sound track.

The movies cost the city about $8 each and are admissible as courtroom evidence. However, not one attorney for the 36 drivers convicted since the system was installed last summer has pleaded innocent for his client after being given a sneak preview of the film.

New Water, Sewage Research Center

A new $180,000 Water Resources Center is currently under construction at Ohio State University, Columbus, Ohio. The Center will triple space available on the campus for chemical and biological research in water, sewage, and industrial wastes.

The new facility has been made possible by a grant from the National Institutes of Health and an appropriation by the State of Ohio.



Spunline Relines Pipe Lines in-place without removing the pipe

Another city such as Spokane, Dallas, or Los Angeles will soon be enjoying the savings of another rehabilitated pipe line. The flow will increase, the pumping cost will drop and the pipe line will be good as new for at least another quarter of a century.

And traffic will move without interruption or inconvenience to the public.

Spunline® is applicable to pipe lines down to 4″ and may be used in cast iron, steel, concrete and wrought iron pipe lines.

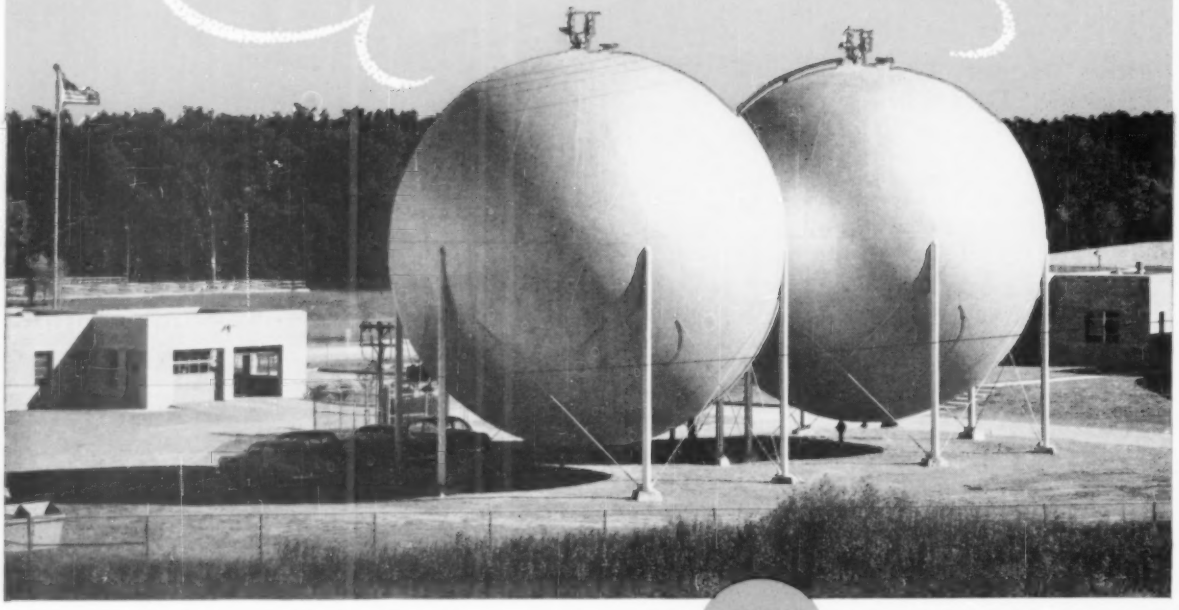
Write, wire or phone PIPE LININGS Inc.

Subsidiary of American Pipe and Construction Co.

2414 East 223rd Street, Wilmington, California
P.O. Box 457 • Phones: SPruce 5-3273 — TErminal 5-8201
Rail Address, Pacific Electric, Watson, California

HORTONSPHERES®

help reduce operating costs at South Bend treatment plant



South Bend, Indiana's sewage treatment system uses digester gas as low-cost fuel to drive sewage pumps and air compressors.

To equalize the variable gas production with demand, CB&I furnished these two 45 ft. diameter Hortonspheres®. Excess gas is stored in them at 40 lbs. per square inch working pressure—and released according to demand.

Hortonspheres are in demand *wherever* progressive operators seek to reduce sewage plant operating costs, for two reasons: Hortonspheres store *more* in *less* space; and, their performance is backed by seven decades of CB&I's craftsmanship in the design, fabrication and erection of steel plate structures.

Write your nearest CB&I office for details on Hortonspheres—for either digester gas or municipal gas service.

M50C-R

3 WAYS SEWAGE PLANTS SAVE with HORTONSPHERES

- Store more . . . in less space
- Smooth out pressure variations
- Provide peak load gas reserves

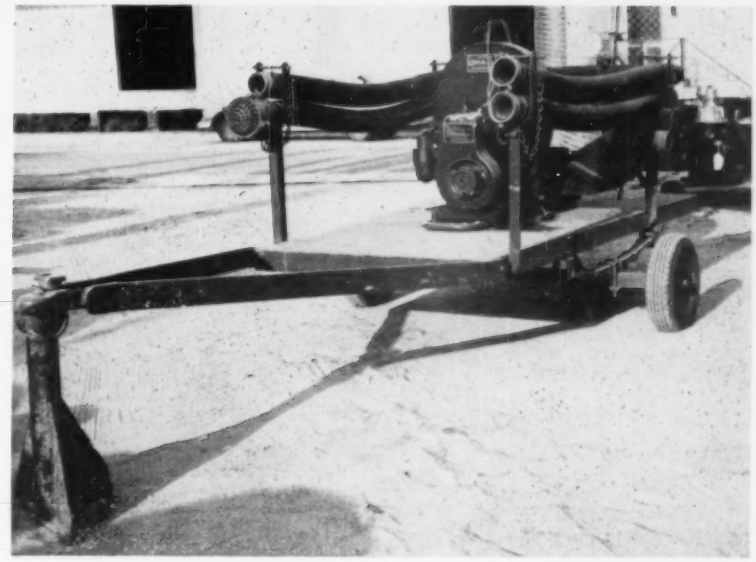
Continuing improvements by CB&I in design, testing, fabricating, and erection techniques and equipment — plus new tougher steels with higher yield strength, have considerably extended the volume of gas that can now be stored at high pressure.

CHICAGO BRIDGE & IRON COMPANY

332 SOUTH MICHIGAN AVENUE
CHICAGO 4, ILLINOIS

OFFICES AND SUBSIDIARIES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

Labor-Saving Pump Trailer



This easily towed flat-bed trailer lets the emergency pump go into action on the double.

Woodrow Watson, water distribution foreman in Ocala, Fla., now can get his 500-pound diaphragm pump to main breaks and other emergency areas on the double quick. He has mounted the 3-inch C.H.&E. pump with its 6-hp Wisconsin engine upon a specially constructed flat-bed trailer which has a welded steel frame and a platform supported by leaf springs and a solid axle. For added protection against road shock, the pump and motor are mounted on shock absorbers. Four-foot posts support two lengths of three-inch suction hose in such a way that they are not folded or bent, thereby preventing damage.

With this pump trailer, Mr. Watson can get the big pump on the job in a hurry and his men lose no time making room for it on one of the city trucks, nor do they have to waste energy "manhandling" the heavy, awkward piece of machinery. One man can now transport the pump, hook it up, and operate it without any help.

All of the construction was performed in the city shop and much of the material was on hand in the city yard. The wheels and tires were taken off the pump and mounted on the new axle with the pump mounted close to the balance point.

Voluntary Contributions Complete Water-Works Financing

When the Town of Marshville, N. C., found it needed an additional $15,000 to finance a new water system, local residents came to the rescue with voluntary contributions.

After the voters of this town of 1,500 population approved a $265,000 bond issue, the authorities discovered that it was necessary to lay an 8-inch main rather than a 6-inch line to serve an industrial area properly and that additional funds were needed. This was especially important since the town is trying to interest industry in locating in the area. Presently the town has two small industries—a turkey processing plant and an asbestos plant.

At a meeting attended by 45 citizens, Mayor R. Bruce Stegall and Town Attorney J. Max Thomas explained the need for additional funds. Since the town had already reached the bond issue limit imposed by state statute, it was impossible to issue additional bonds and time did not permit application for federal funds.

Realizing that additional industry was needed to stimulate growth and put the town on a more stable economic footing, those present unanimously agreed to canvass the town for contributions. To back up their vote, the 45 persons present at the meeting pledged almost one-third of the amount needed. The balance was raised in less than two months. Town officials have agreed to refund the money contributed to donors on a pro-rata basis if the entire $15,000 is not used to finance the project.

Land Donated

Now that money is available, town officials have instructed the Raleigh, N. C., engineering firm of Whitman and Pearson to draft plans for construction of a dam and water treatment plant on sites approximately four miles from the Marshville business district. Additional volunteer help came through the donation of land for the treatment plant by a prominent Marshville citizen. Source of water will be Lanes Creek, recently approved as a water source by the State Stream Sanitation Committee.

Mayor Stegall expects construction to start early in 1960, with completion scheduled for approximately 18 months later. Presently Marshville obtains its water from Monroe, a neighboring city.

Tailgate and packer units were removed and the spreader mechanism was mounted on a new closure plate installed at the rear.

Part of the conversion was the installation of a filling hatch in the roof of the body. A mesh screen and cover completed the adaption of the truck.

Salt Spreader Is Converted Packer

Need for a large-capacity, closed-body salt spreader that would be "on the line" for immediate use has led to conversion of a conventional 1947, 15-yard Gar Wood load packer body into a salt spreader, which supplements Cincinnati's snow-and-ice control program.

The packer unit, which had outlived its usefulness as a collection vehicle, was picked for continued service by Mr. Carl Gailey, head of the Public Works Department's Highway Maintenance Division. The division, which maintains a large, flexible organization to handle ice and snow control on all roadways, bridges and viaducts, normally controls slippery conditions by spreading sand, salt, crushed cinders—or mixtures—from open dump trucks equipped with hydraulic or engine-powered spreaders.

It has been found, however, that early applications of straight salt have been most effective and eliminate the dust and clean-up necessary after sand and cinders are used. It was this experience that led to adaptation of a Model HY-4 Century spreader to the tailgate of the packer unit for salt spreading.

Principal alterations consisted of removing the heavy tailgate and packer mechanism from the refuse body and adapting the spreader with suitable closure to fit in its place. The hydraulic piping, hose and fittings were rearranged to connect to the spreader motor. A loading hatch with weather-proof cover, screen and inside chute was installed in the top of the body near the front. The side loading doors were left in place for access and inspection. They remain open during the loading operation to provide easy determination of the maximum safe load.

The hydraulic equipment of the packer was more than adequate to operate the spreader and to hoist the body when necessary to slide material to the rear. All controls are in the truck cab within easy reach of the driver.

Joseph L. Maurer, superintendent of municipal equipment, reports that the entire alteration was performed by personnel of the municipal garage at a total cost of only $400.

As a result, the Highway Maintenance Division has a "closed body" truck-spreader combination that stores six cubic yards of salt "in the dry" parked at a stand-by location, ready to go at a moment's notice when a storm strikes.

W. C. Wichman
Director of Public Works
Cincinnati, Ohio

Snow Removal Is Expensive

Schenectady, N. Y., with an average annual snowfall of 57½ inches, spends more than $200,000 each year for snow removal. City employees, numbering as many as 145 men in peak periods, take part in the work on a three-shift basis.

For removal work, the city uses five SnoGos and three Barber-Greene and Nelson conveyor loaders and sufficient trucks to keep the loaders busy. Priority is given to main and secondary business streets and main traffic arteries. In the picture a SnoGo is shown loading snow into an 8-yard Dodge dump truck.

Ice and sleet storms are also a common winter occurrence in Schenectady, and to combat this condition the city uses an average of 3,500 tons of salt each year.

Fantastic?

Not when you *rent* a Wayne Street Sweeper, pay for it out of operating funds... and actually own it at the end of the rental period for just $1.00—*all without capital investment!*

Cities all across the nation... and cities of *every* size... are making this Wayne Rental Plan the simple, convenient method of starting their own street sanitation program. Labor savings alone can pay the cost, streets are kept sparkling clean, and the Wayne is yours for continued service for years to come.

Before you invest in *any* sweeper equipment or program, send for the brochure outlining the exclusive Wayne Rental Plan for municipalities. It's yours for the asking—*write today!*

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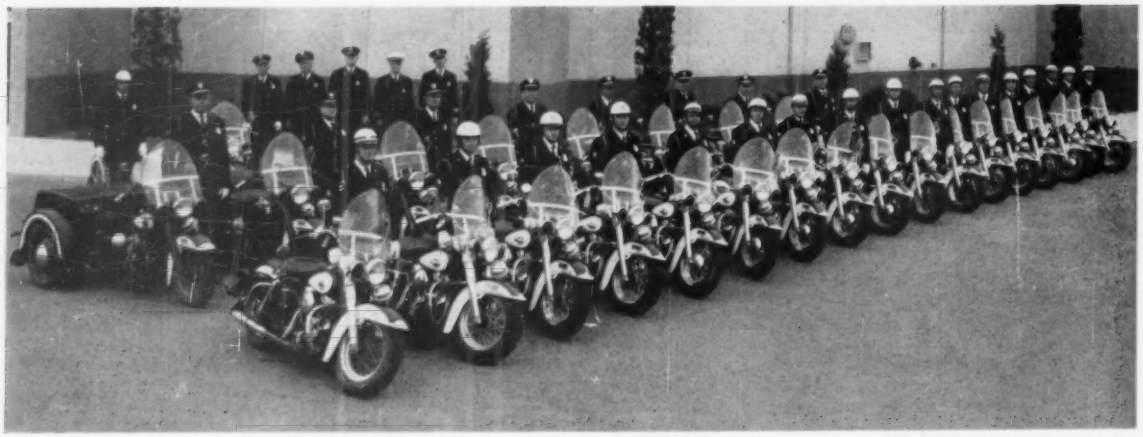

The motorcycle officers of Spokane, Wash., with their 26 new Harley-Davidson motorcycles. The Duo-Glide solos are in the front row with the Servi-Cars in the second row. The officials standing in the background are Chief Clifford Payne, Inspector Robert Piper, Traffic Capt. John Reilley, Assistant Chief Bill Parsons and Lieut. Dave Lamphier.

Motorcycles in Spokane

The City of Spokane, Wash. is divided into districts patrolled by one-man prowl cars. Each district as far as possible is backed up by a Harley-Davidson solo motorcycle. In case of a serious matter the motorcycle responds and sometimes motors from other districts are called, too. Their main function is traffic control and enforcement, the control of speeding stop sign and red light violations. Due to the man-power shortage we have been forced to operate one-man cars and supplementing them with motorcycles has worked fairly well.

In 1960 we are replacing four Servi-Cars with solos. We will keep only four Servi-Cars for escorts and various parking violation problems.

E. W. Parsons
Acting Chief

Fireman Originates Fire Hydrant Device

Harold G. Heinze, a member of the Long Beach Fire Department, has originated a simple fire hydrant device which corrects a problem caused by corrosion and rust in the barrel of a wet-type hydrant having individual shut-off valves. Smooth operation of the hydrant valve was affected after many years of constant contact with water; the cost to replace or renew the hydrant was considerable.

The inside of the hydrant originally was cast with two slides to prevent the brass valve seat, to which the rubber gasket is fastened, from turning when the hydrant stem was turned. The brass valve seat operates on the threaded valve stem as the latter is turned to permit flow or shut-down of water.

A 6-inch bronze bar, ⅜-inch in diameter, is brazed to each of the two valve assemblies. This bar, coming to rest against the inside of the hydrant, prevents the valve assembly from turning completely around as the valve is opened or closed.

This new device has reduced the chatter of the valve against the hydrant opening. This, in turn, reduces water hammer in the main. In the past this often has caused damage to domestic and industrial piping systems.

Fireman Heinze submitted this suggestion through the Department Suggestion Box. Consideration was given by a committee and, after a trial period of one year, was reconsidered. At this time the city awarded Fireman Heinze $240 for the suggestion. Many thousands of dollars will be saved by this device.

Frank S. Sandeman, *Chief*
Department of Fire
Long Beach, Calif.

Intensive Fire Training

The city of Burlington, N. C., has what we think is one of the best-trained fire departments in the southeast. There are no pool tables, card games or other diversions. A day in this department is a day of hard work, training and instruction.

Officers and men of the department actually chart and diagram each building in the fire zone—its floor plan, contents, doors, windows, skylights, electric panels, stairs, and later make "dry runs."

Recently the owner of a house that had been condemned donated the house to the fire department for practice burning and fire fighting. Numerous fires were set and extinguished for the training sessions before the house was purposely burned to the ground.

James P. McGaughey
Personnel Officer
City of Burlington, N. C.

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WITH DUBL-DUALS

You save 23% on the initial cost of Rockwell Dubl-Dual parking meters, because two mechanisms are combined in one case. For on-street or off-street parking, Dubl-Duals not only assure initial savings, but installation costs are slashed 50% as well. With only half as many meter stands, both maintenance and collection costs are cut. You can meet any spacing requirement by specifying Dubl-Duals with a few single Duals.

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New General Electric Transistorized Progress Line

Not only is this the world's smallest, lightest commercial two-way mobile radio, but standby battery drain is so low you need never turn off your TPL mobile unit, just like the clock in your car. You install no special generator, use less gas, require fewer engine jobs.

General Electric's new Transistorized Progress Line will fit in more places, in more different positions, than any other two-way mobile radio you can buy today.

TPL is the first two-way radio that transmits up to 75 watts of power in high band . . . the first that really fits under the dash . . . the first to realize the full benefits of transistorized design (no more than four tubes) . . . the first to eliminate bulky cables through new one-piece design of receiver control and transmitter . . . the first with shielded dirt-free ventilation.

The new General Electric TPL ushers in a new era of convenience and reliability in mobile communications, already proved in many installations from coast to coast. Don't miss all the exciting details. Write General Electric Company, Communication Products Department, Section 120, Mountain View Road, Lynchburg, Virginia.

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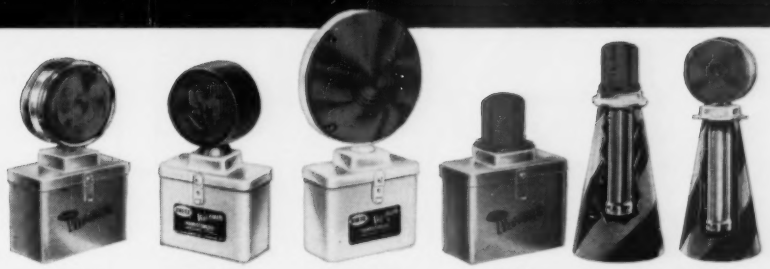
DIETZ 3-WAY Hazard Warning System!

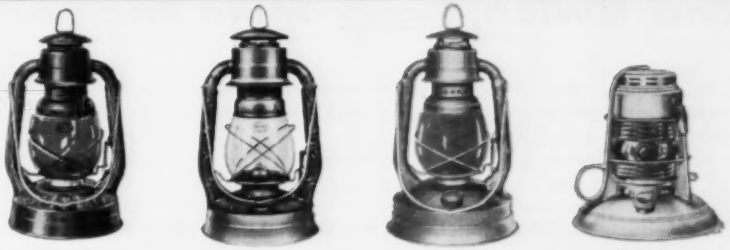
1 *Use DIETZ*
VISI-FLASH LIGHTS
to alert the oncoming driver:



No. 600 · No. 604 · No. 697 · No. 620 · No. 630 · No. 610

Brightest, safest, most trouble-free flashers on the market. Warn: "Danger Ahead."

2 *Use DIETZ*
LANTERNS
to locate hazard in relation to the driver's position:



No. 1 · No. 8 · No. 100 · No. 40

Show exact location, shape, extent, and boundaries of hazard area. Burn up to 100 hours.

3 *Use DIETZ*
TORCHES
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No. 750 · No. 87 · No. 751 · No. 96

Fully illuminate the danger in every weather. Burn up to 48 hours on low cost kerosene.

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NEW! DIETZ HAZARD WARNING PLANNER

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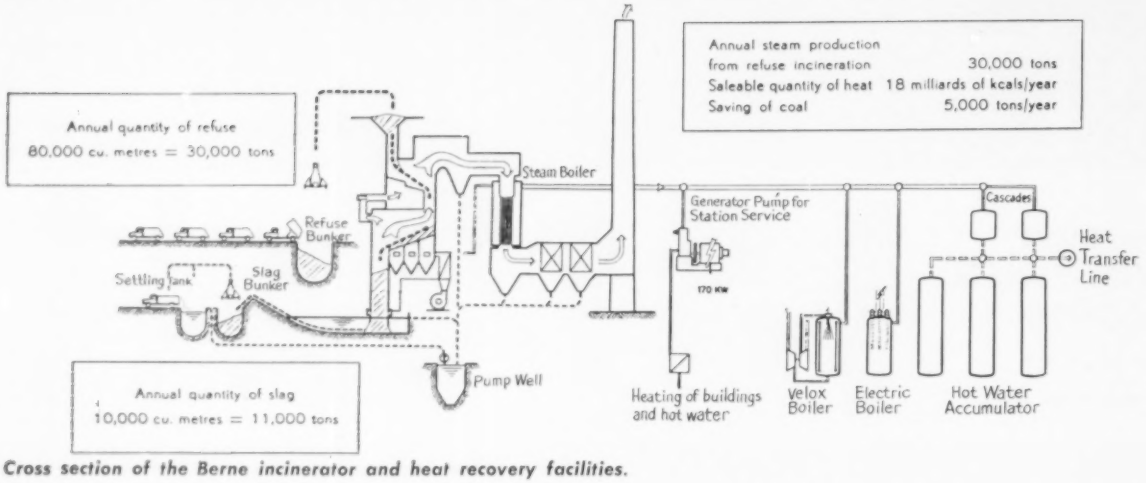


Cross section of the Berne incinerator and heat recovery facilities.

The Swiss Don't Miss Incinerator Thrift

When the practical-minded Swiss incinerate their refuse, they don't intend to let those BTU's get away without doing a little work.

Berne, Switzerland, recently built an incinerator that turns its waste heat into steam, used by two factories (one is a canned food plant), and hot water for a 1,200-bed general hospital, a 120-bed children's hospital, a dental institute and a school.

The new incinerator, constructed by the Swiss firm, Von Roll of Zurich, uses furnaces of the inclined-grate type with the combustion grates and chamber located under the drying and ignition grates. The overhead crane keeps the furnace loading hoppers filled with refuse at all times. This serves as a plug, preventing the escape of hot combustion gases into the charging and storage pit room. A shaft furnace adjoining the main grate burns the residue of materials requiring additional combustion time.

The residue is quenched in a water-filled channel and conveyed by an endless scraper chain to a slag bunker. Each of the two furnaces has its own ash-disposal system for independent operation.

The hot gases pass from the combustion chamber through a waste-heat boiler where they are cooled to about 260°C. An electro filter installed between the waste-heat boiler and the single 260-foot stack collects dust from the gases.

To guarantee a steady supply of heat to consumers, equipment includes, besides the two furnaces, one Velox steam generator, oil fired for nine tons of steam per hour; and one electric boiler for power consumption of 6,000 kw as a reserve.

Steam generated in the waste-heat boiler flows to a collecting header. A 2,296-foot-long line conveys steam from the header to the two factories previously mentioned. A second line leads to the cascade converters where steam and returning water are converted into hot water having a temperature of 183°C at 10 atmospheres gauge. This hot water is stored in three accumulators and pumped to the consumers. Converters installed in the buildings of the consumers transfer heat to their own water—that coming from the district heating plant serves as a heat carrier only, and returns to the cascades in a cooled condition.

The incinerator plant operates two shifts from Monday through Saturday, plus one shift on Sunday. The heat supply is supervised continuously in the heating station. There are 27 persons employed to operate the entire installation under the direction of P. Muhlethaler, plant manager.

The plant burns 30,000 tons of refuse per year and from this produces 30,000 tons of steam. The estimated coal saving amounts to 5,000 tons per year.

Annual operating costs come to 650,000 Swiss francs, including 360,000 francs for wages. Income, mainly from the sale of heat, is about 560,000 francs.

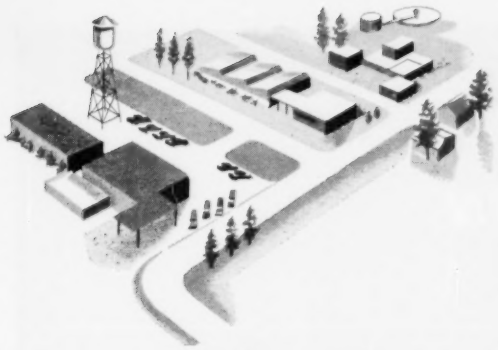
Better Refuse Storage Urged to Cut Fire Hazards

Fire departments in 161 cities across the country are participating in a program to condemn flammable garbage containers and to stimulate public use of metal rubbish burners and metal fuel cans.

Local fire chiefs are waging the campaign through the use of materials designed for newspapers, radio, television and the mail. All material is supplied free of charge by the public relations department of the Galvanized Ware Manufacturers Council, Chicago.

The message on the post card states: "Handle with Care . . . Trash . . . Gasoline. Keep trash in covered galvanized steel garbage cans. Avoid open bonfires. Burn trash in covered metal rubbish burners. If you have gasoline for a power lawnmower or outboard motor, keep it in a steel fuel can. Don't use glass bottles." This is signed "Fire Department."

Although designed for use in the mail, many fire departments are having Boy Scouts and Girl Scouts distribute them to households.



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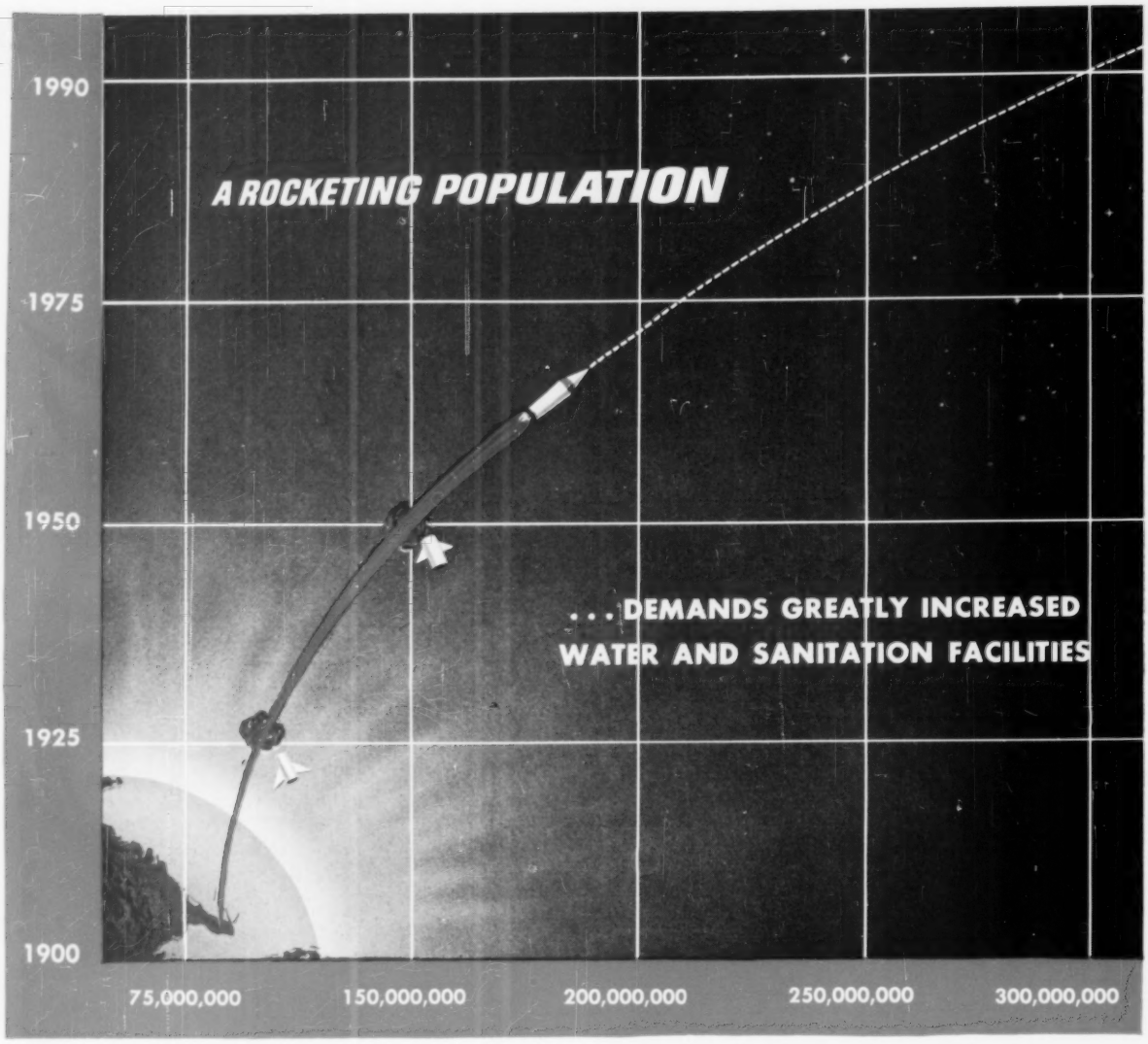

Growth of U.S. Population in Millions:

1900—75; 1950—150; 1990—300 (Estimated)

And proportionate demands on water and sanitary facilities are increasing even more rapidly because of industry's ever-growing need for water supply and waste disposal.

Over the past half century Lock Joint Pipe Company has helped keep pace with the requirements of a doubling population by supplying millions of feet of concrete pipe for vital water and sewer lines. Virtually 100% of these are still in service and are operating with the same high efficiency as the day they were installed.

This unexcelled record for economy, efficiency and safety certainly recommends Lock Joint Concrete Pressure and Sewer Pipe as the ideal material to implement the long range plans of water and sanitation officials to meet the growing crisis.

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Mayor Hanna's Record

Superior, Neb., has a woman as mayor, the only one of her sex holding such an office in the state, who will make San Juan's famous feminine mayor, Senora Felisa de Gautier, look to her laurels.

Mayor Arabelle P. Hanna has headed her city for the past four years. In the last election, she won her post by a write-in vote, defeating two men. This, she feels, indicates that the people take the name of their community seriously

In her four years of office, the city has built a new sewage treatment plant and stopped the continuous pollution of the Republican River; her account of this appears on page 89 of this issue. The city lighted its airfield; built and equipped electrically a large kitchen in the civic auditorium; remodeled the police and fire station; resurfaced between 30 and 40 streets, using a city-owned distributor made by Standard Steel Works, North Kansas City, Mo.; placed mercury vapor lights all over the city; and revised and reprinted the city ordinances, for the first time in 30 years.

One of Mayor Hanna's first acts was to authorize the purchase of gas pumps for Superior's municipal airport and to purchase gasoline on a bid basis, thereby saving several times the cost of the equipment. The city airport formerly was maintained by a farmer living nearby. She and her council let him go, placed the police department in charge and turned the maintenance over to the street department. Business at the airport has grown, now that the field is lighted.

Young Businessmen Help Neighborhood Analysis

The Worcester, Mass., Planning Department recently tried an experiment designed to fill the gap in the professional planning staff of the Department's program of neighborhood analysis. Last spring the Young Businessmen's Association (YBA) inquired of City Manager Francis J. McGrath whether he had a civic project involving some field work that could be undertaken by YBA. Mr. McGrath referred YBA to Robert A. Gordon, Planning Director, who decided to try an experiment whereby the professional planning staff would be re-

Air Pollution Control Notes

Saginaw Rejects Program

At the suggestion of a resident of his city, City Manager C. A. Miller of Saginaw, Mich., reported to the City Council on the need for an air-pollution-control program. The substance of his report was that no amount of good intentions and determination would decrease air pollution without the enactment of a modern ordinance and provision of personnel to enforce it. He estimated the cost of the program at between $8,000 and $20,000 annually. Subsequently the council decided not to undertake the program.

Steel Mills

Just what effect air pollution from steel mills has on the atmosphere of Wheeling, W. Va., is being studied now, on the basis of air sampling for the National Air Sampling Network of the Public Health Service which went on in that city during the recent steel strike. Samples were taken continuously of gas and particulate matter in the air. The results of this program will be compared with the figures obtained when the steel plants are in full operation.

Intensive Survey

Spokane, Wash., is nearing the end of an intensive air pollution survey, first of its kind in the State of Washington. The survey was started in August by the State Health Department, at the request of Dr. Hampton H. Trayner, Spokane Health Officer. The reason for the survey is that results of the samplings for the national network have indicated the need for a more thorough determination of basic causes and effects of air pollution in the city. Additional sampling equipment has been placed at strategic points in the Spokane area.

Jail Terms Proposed

Reeve J. A. Allen, Chairman of Metropolitan Toronto's Works Committee, has proposed jail terms for third-time offenders of the air-pollution-control regulations. The proposed new penalty would involve a fine for first offenders, a heavier fine for the second offense, and three-day jail terms for convictions on the third offense. "Some people," Allen said, "find it cheaper to pay fines rather than spend money for anti-pollution equipment."

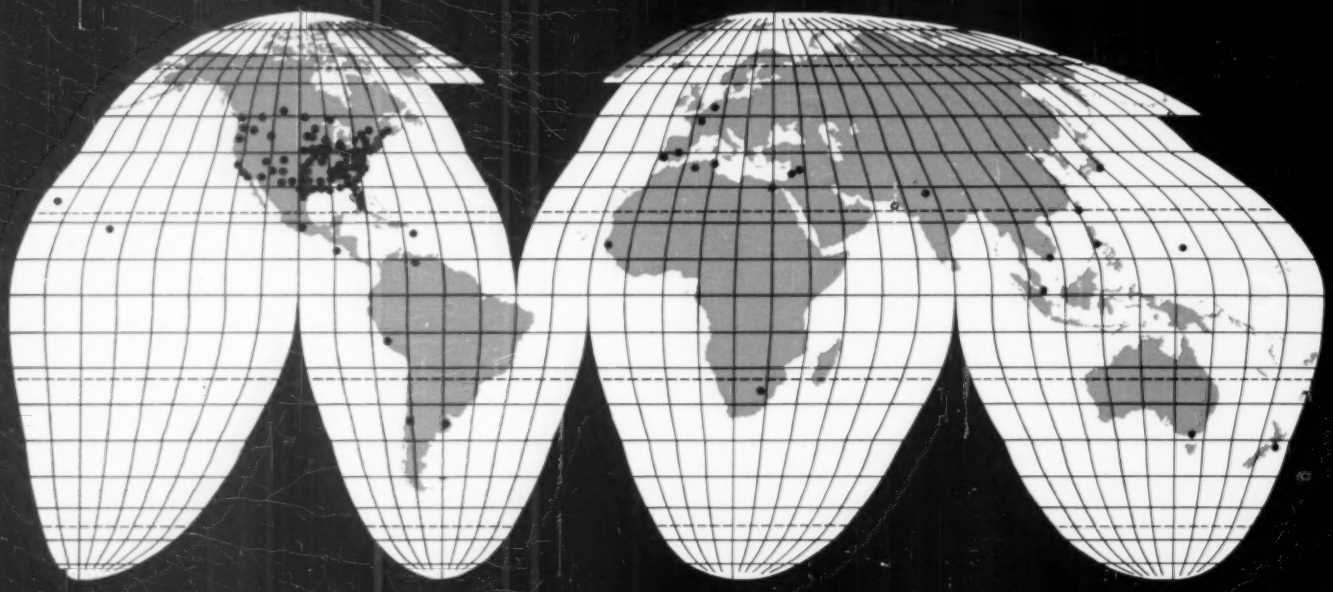
Not Clean Enough

When Colorado University was looking for a location for its High Altitude Observatory some years ago, it chose Climax, Colo., because the sky was free of dust and haze. Now, although the move may be a long way off, university officials say that thought is being given to moving the observatory, because of air pollution. While the air may be clean for most other purposes, officials say, it is not quite clean enough for all the work of the observatory. Pollution, they say, comes from at least three sources—from the West Coast, brought in on the wind; from Denver's industrial area, and from the nearby operations of a metals company.

First Item of Business

The Commission on Metropolitan Area Problems, established by California's Governor Edmund Brown, has decided to consider the problem of air pollution as its first item of business. The 19 members of the non-partisan group decided that air pollution, of all metropolitan area problems, is the most pressing in California.

—Prepared by Kenneth Kowald



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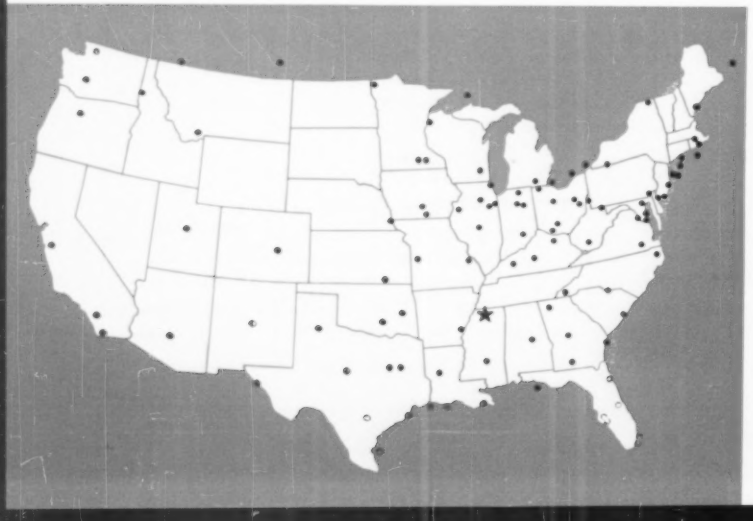

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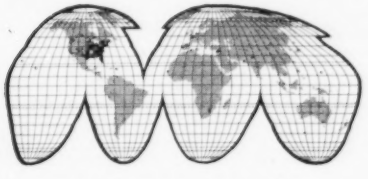
Albuquerque, N.M.; Atlanta, Ga.; Boston, Mass.; Buffalo, N.Y.; Charleston, W.Va.; Charlotte, N.C.; Chicago, Ill; Cincinnati, Ohio; Coral Gables, Fla.; Detroit, Mich.; Grand Rapids, Mich.; Honolulu, Hawaii; Houston, Tex.; Indianapolis, Ind.; Jacksonville, Fla.; New York, N.Y.; Philadelphia, Pa.; Richmond, Va.; St. Paul, Minn.; St. Petersburg, Fla.; Salt Lake City, Utah; South Bend, Ind.

There's a world of service available
WHEN YOU SPECIFY LAYNE



lieved of much of the field work.

The Planning Department prepared an inventory form (which can be used in any neighborhood) and block maps of the study area, 200 acres near Elm Park. A YBA committee of eight members was briefed by Mr. Gordon and the committee, in turn, briefed team captains. The teams collected information on the conditions of building and land use; they used a land-use code and a list of factors of blight which had been prepared by the Planning Department. The Planning Department at the same time collected detailed information on the age of buildings, population density, assessed value of buildings, floor area ratios, topography, and traffic flow for the same area. The YBA completed its field work within four weeks; this work represents the time of two full-time planners for a period of two weeks. It is interesting to note that the Planning Department would not have been able to undertake an analysis of the Elm Park area without the assistance of the YBA since the Department did not have the personnel for field work.

The survey revealed that at least 60 of the 200 acres are in poor condition. The Health Department, as a result of the Planning Department study, has ordered a crackdown on run-down houses in the area and has started a systematic environmental survey.

The Planning Director decided to give two graduate planning students (summer employees) some practice in data analysis and design. He assigned them to work on the project and prepare long-range plans for the renewal of the area. Long-range plans for the area include the closing of two old schools and their replacement by a new building with adequate playground space, the demolition of houses beyond rehabilitation and their replacement by new apartment buildings with greenery and open space, and the provision of off-street parking.

New Source of Income

Police records, legitimately disclosed, are providing a new source of municipal income in San Francisco. The release of information from motor vehicle accident reports in that city is bringing in revenue from attorneys, employers, insurance companies and others.

Releases are made in conformity with specific provisions of the State Vehicle Code and are restricted to persons having proper interest therein. If an accident involves a crime, certain police information is usually withheld until after any criminal prosecution.

Copies of the official reports are released and a service charge is made, varying from $1 for the initial page to $2 for a complete report regardless of the number of pages. A service fee is charged for photographs, also; it varies from 25 cents for a 2½x2¼-inch contact to $3.35 for a 16x20-inch enlargement.

The service charges do not apply to requests received from other law enforcement departments, government agencies, or other public officials. Charges may be waived by authorization of the Chief of Police for "any persons or institutions affected with a public interest."

Peoria Can't Afford to Pass up Urban Renewal

In Peoria, the question isn't whether the city can afford urban renewal. The question is whether the city can afford to be without it.

The 1958 budget figures showed that the area of the city considered for a renewal program was not pulling its share of the general tax load. This area contributed in taxes about $1,240,000. The cost of municipal services to the area was just about double the tax income. The area required 27% of the city's total tax income as well as:

- **roughly 45% of the fire department budget**
- **18% of the police budget**
- **30% of the public health budget**
- **30% of the school budget.**

Peoria's South St. Francis project typifies the city's work in this field. It contains 140 acres overall. Of this, 31 acres are earmarked for clearance. In redesign of that clearance area, the city intends to reduce the land devoted to streets and alleys from the present 35% down to 8-10%. This, of course, will add much land to the tax rolls that is now devoted to an out-moded excessive circulation system. The assessed valuation of the new development will be vastly greater than that on the present blighted area.

These two major factors will almost exactly double the tax revenue derived from the 140 acres involved in the project.

How Mack Balanced Design can help your department fight fires more efficiently

Mack fire apparatus can handle your hardest assignments most dependably because they're built according to the principle of Balanced Design.

Balanced Design is the exclusive Mack practice which assures you of the most efficient, trouble-free and best-performing apparatus. It is made possible by matching components so exactly that they function as a completely integrated apparatus. To achieve Balanced Design, Mack designs and builds its vital components.

Thus Mack engines, headed by the famed Thermodyne® 707C, pump effortlessly hour after hour, day after day . . . transmissions match exactly the characteristics of Mack engines . . . single rear axles or rear 4-wheel-drive Mack Balanced Bogies give you maximum traction under all road conditions . . . air or hydraulic brakes provide quick, dependable stopping ability.

Equipped with single, two or three-stage pumps, Mack pumpers are available in 500 to 1250-gpm capacities, equipped with the booster tanks and equipment to meet your requirements.

Ask your Mack representative to demonstrate to you why Mack Balanced Design apparatus—cab-forward or conventional—is the best-performing, most dependable apparatus in the world today. Mack Fire Apparatus, Allentown, Pennsylvania. Mack Trucks of Canada, Ltd., Toronto, Ont.

MACK

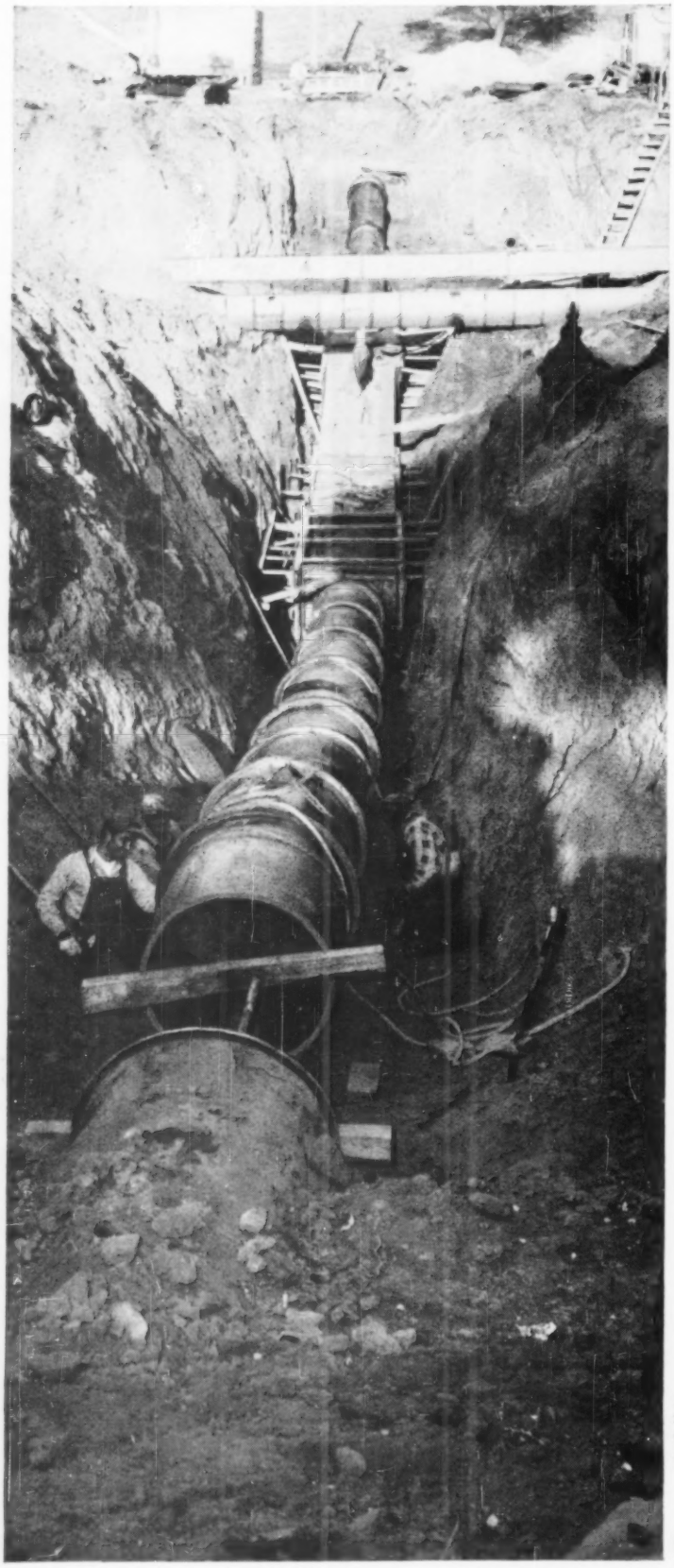
FIRST NAME FOR

FIRE APPARATUS

7574

COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . . AERIALS 65′ to 144′ . . . COMBINATION LADDER TRUCKS

Mack 6SS
Thermodyne



DON'T BE FOOLED BY INITIAL PIPE COSTS...

Certain factors concerning the type of pipe to be used for a proposed water or gas project must be examined carefully:

First

—how much does the pipe cost, compared to other types?

Second

—how often will it require repair?

Third

—how long before it has to be replaced?

After all, how much money do you really save if you buy the cheapest pipe . . . then have to repair it frequently . . . and *then* have to replace it within a decade or two?

You save with cast iron pipe

Sometimes the first cost of jobs where cast iron pipe is specified, is higher than similar projects using cheaper pipe. Yet, in the long run, cast iron pipe costs *less!* Here's why:

- Cast iron pipe rarely requires repairs. Its rugged construction, corrosion-resistant qualities and bottle-tight rubber-ring joints will withstand the most severe pressures. Once an investment is made in cast iron pipe, it is usually your first and last cost because of the absence of maintenance or repairs.

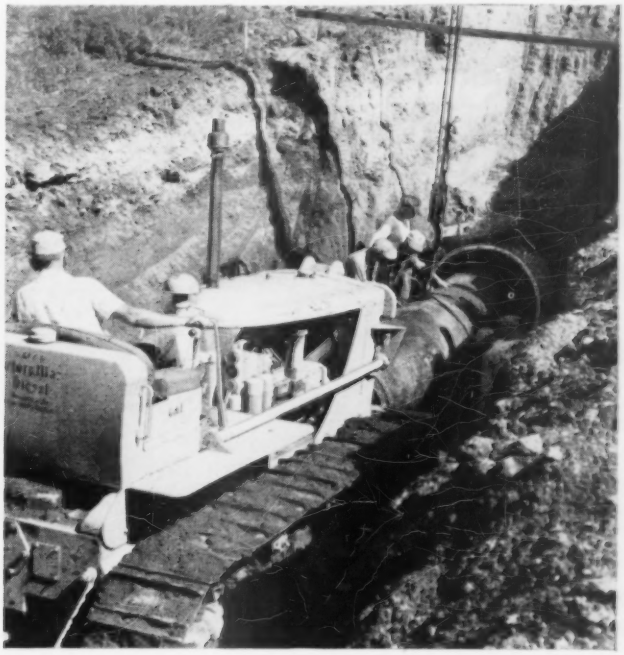
- Cast iron pipe is built to *last*—98 American cities will testify to that. They've had cast iron pipe installations in constant use for over a century! In fact, in Versailles, France, they're still using cast iron pipe water mains that were laid in 1664! Once cast iron pipe is in the ground, it stays there!

Don't be fooled by "low-cost" pipe. Insist on the pipe that will actually save you money over a period of years . . .

In Nebraska—Here a section of cast iron pipe is being relocated. Twenty-five years old, the pipe is still in excellent condition—has never required major repair . . . or replacement.

Rely on CAST IRON PIPE

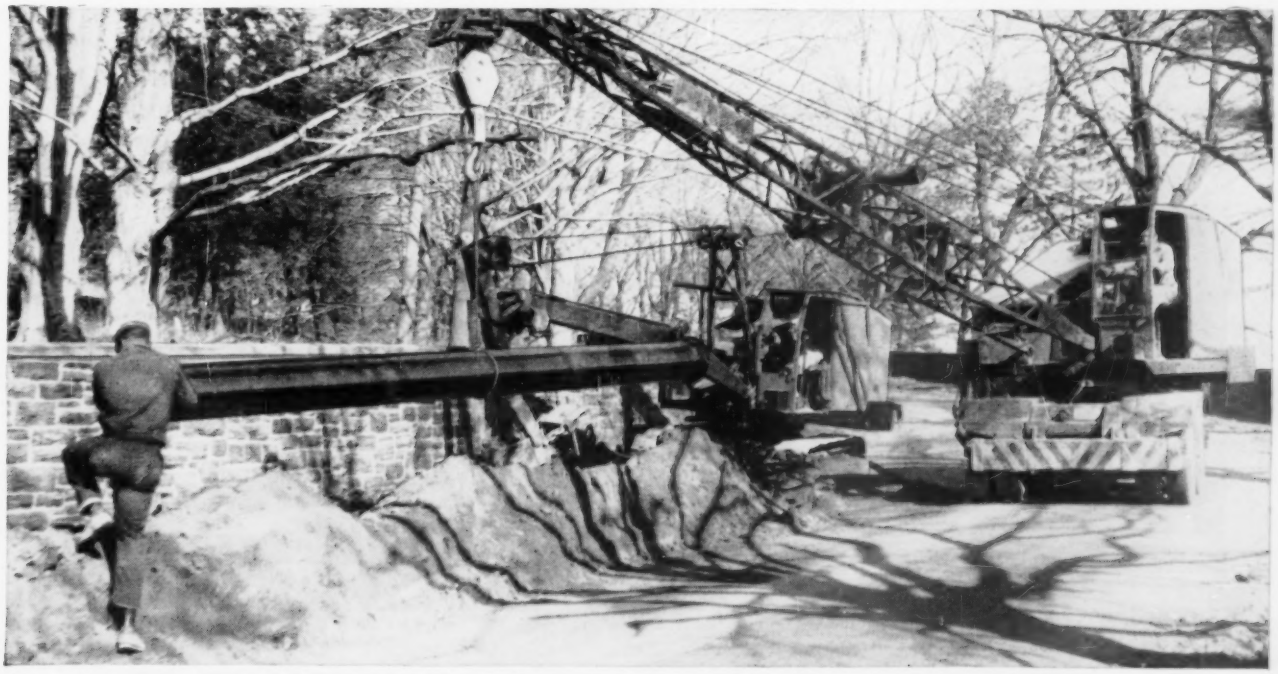
In Indiana (above)—"All-weather" cast iron pipe is quickly installed despite wet trench conditions. Slip-on joints were easily assembled, with one workman using a crowbar.



In Kansas (above)—36" cast iron water main. Another part of this main was floated out of its trench by a heavy downpour. Later a 150 psi water test revealed no leaks in the slip-on joints!

In Pennsylvania (below)—This 16" cast iron pipe is being installed as fast as the trench hoe can prepare the trench.

Handy lengths and slip-on joints make cast iron pipe easy to handle, even in crowded neighborhood sectors; require less labor.



CAST IRON PIPE

THE MARK OF THE 100-YEAR PIPE

Cast Iron Pipe Research Association,
Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Illinois

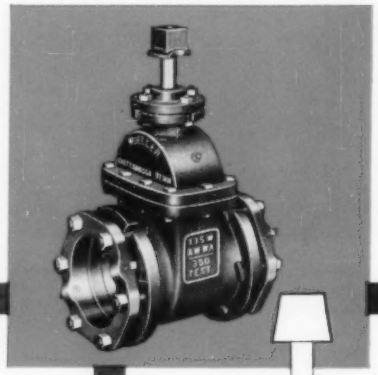
the reason more and more water systems standardize on **MUELLER**® *gate valves:*

TIGHTER SHUT-OFFS
TROUBLE-FREE OPERATION
MINIMUM MAINTENANCE

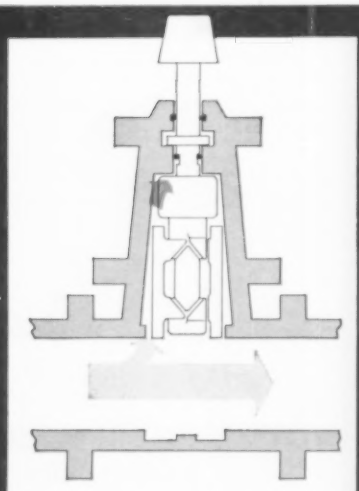
. . . These are just a few of the benefits you get from installing Mueller double-disc, parallel-seat valves with exclusive "4-Point" wedging mechanism design.

The drawings below illustrate the principle. Torque applied to the valve stem is resolved into a vertical wedging force by the upper and lower wedge nuts. Side-spreaders transfer this force into a horizontal action and apply the force at four points on each gate disc.

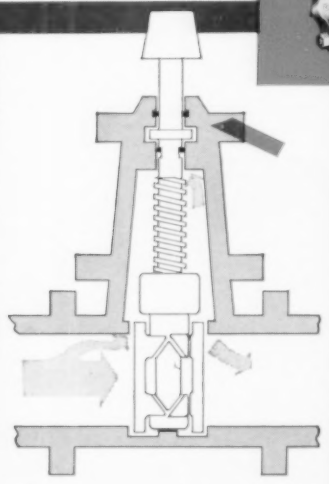
Uniform seating loads are developed, eliminating disc distortion and deflection. Tighter, positive shut-offs are assured.



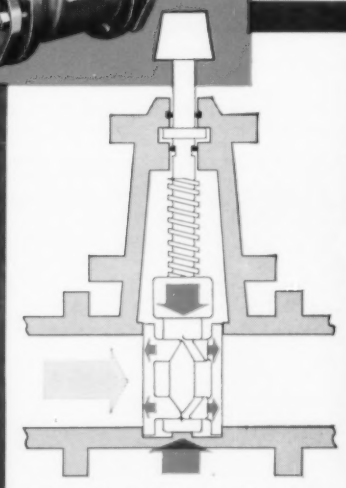
Here's how the "4-Point" mechanism works.



Valve Open — Discs supported by flange (not shown) on stem wedge nut. (Note how water pressure in bonnet is tightly sealed by "O" ring seal.)



Valve Closing — Thrust on stem has forced stem up (note position of thrust collar.) Discs, in contracted position, do not scrape against seat rings when lowered. Lower wedge nut has contacted stop in body.



Valve Closed — Opposing thrust of wedge nuts is divided by side spreaders into four equal seating forces. These forces, evenly distributed to both discs, seat the discs tightly against the body seats. (Note how wedge nut is free to rotate slightly to prevent strain on stem as assembly expands).

Other bonus features — "O" ring stem seals *above and below* thrust collar . . . life-time lubricant completely surrounding thrust collar and sealed in by "O" rings . . . high tensile bronze stems with strong, electrically upset-forged thrust collar . . . sizes over 18" have extremely high-strength, cast manganese-bronze stems . . . complete line of end connections . . . full range of sizes.

Write for complete information and specifications.

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited, Sarnia, Ontario

Cartagena's new traffic circle serves as a welcome oasis of safety to . . .

Sewer System Changes Traffic Pattern in South American City

. . . imperilled pedestrians who once had to dodge traffic on the city's main square.

Sewers and traffic seldom go together, but one affected the other as the result of modernizing the 400-year-old storm and sanitary drains in Cartagena, Colombia. Even custom had to give ground to accommodate one phase of the work, and for the first time in four centuries order has come to the traffic torrent sweeping across the Glorieta, Cartagena's main square, and through the triple-arched Boca del Puente which is the only entrance to the ancient walled city.

The Glorieta barely tops sea level, so when it became apparent that the surface would have to be raised and repaved in order to cover up two major lines, one crossing above the other, engineers from Rader and Associates, of Miami, Florida, consultants on the project, dreamed up a dual-function surface feature that changed the habit of generations.

Cartageneros always had been accustomed to crossing the Glorieta on foot, by horse, by ox-drawn vehicle or, more recently, by automobile, on a strictly every-man-for-himself basis. Even the Historical Society defended this rather sporting system.

The engineers' tactful suggestion that a much-needed traffic circle would solve the problem first was met with consternation. Finally, however, gentle persuasion took effect and now the raised, landscaped circle is admired for its functional advantages as much as for its beauty. The two major sewers are completed and well hidden, and traffic flows in an orderly manner.

This was just a small but interesting part of a large project. Rader and Associates were retained to design two separate projects, storm drains and sanitary sewers. A four-year construction contract with a local contractor, comprising about $4,000,000 worth of work, got under way in 1957. Impressed by improvements made so far, the Junta, or executive board, of Empresas Publicas hopes to extend the program of construction, expansion and maintenance on into the future.

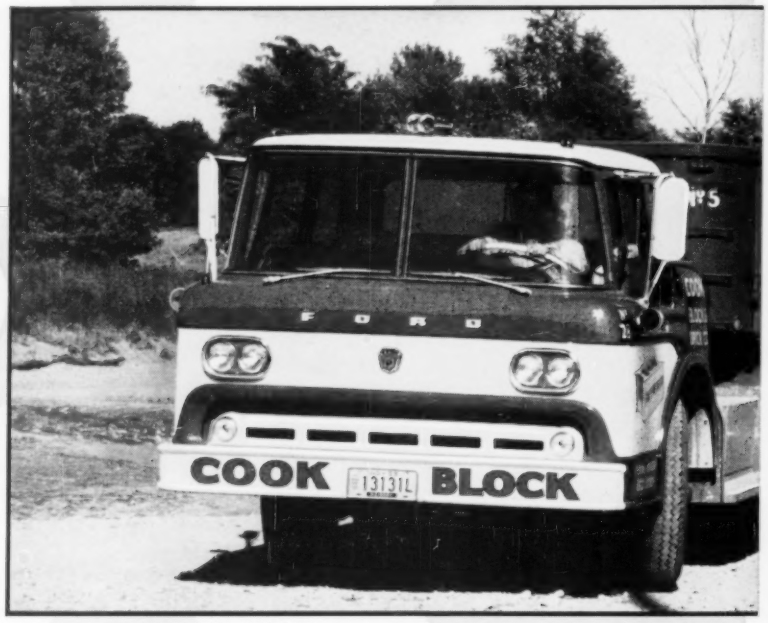
JOHN W. GREENLEAF, JR., *Partner*
Rader and Associates
Miami, Florida

Here's another reason why Ford Trucks are your best buy!

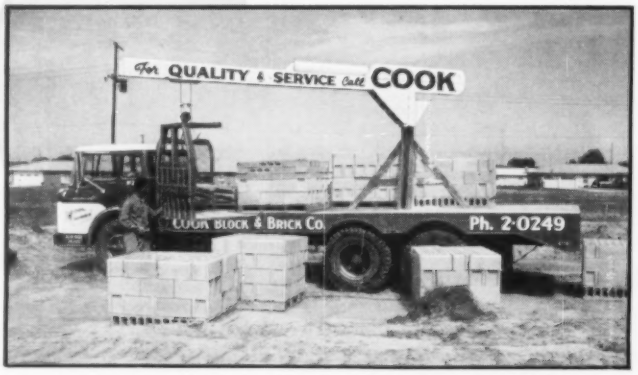
"OF ALL THE MAKES WE'VE TRIED FORD TRUCKS GIVE US THE LOWEST MAINTENANCE COST!"

ANOTHER REPEAT BUYER OF FORD TRUCKS

Virgil E. Cook, owner of Cook Block and Brick Co., is convincing proof that there is still plenty of opportunity in American business for those sound planning, hard working individuals who want to own their own business. Starting from scratch just 13 years ago, he now owns and operates one of the largest concrete products plants in Eastern Indiana. The workhorses in his fleet of 16 trucks are three Ford Tilt Cab Tandems that are used to haul sand and gravel to the plant and make deliveries in and around Anderson.



Hard-working Ford CT-950 tractor leaves Cook gravel pit with 18 yards of aggregate. Aluminum walking beam and rubber suspension system of tandem axle assembly reduce chassis weight, permit higher legal payloads.



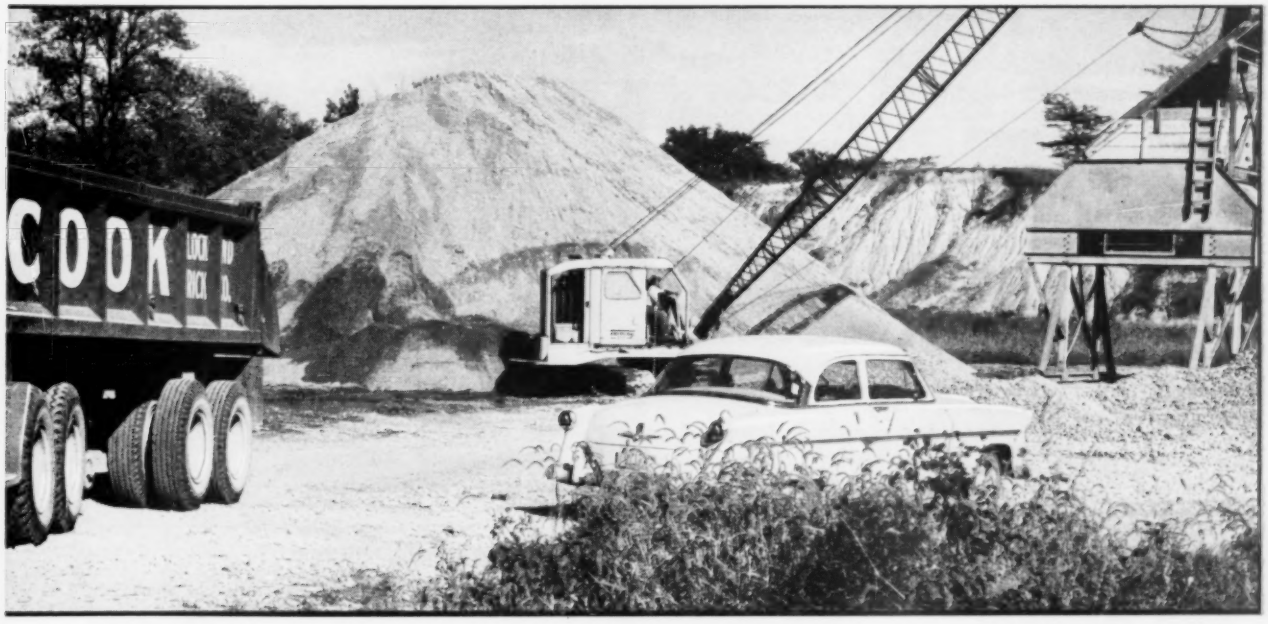
Cook's CT-850 with special flat-bed body and Side-O-Matic unloader delivers blocks right to the job site. Unit carries 600 concrete blocks and spots them where needed.

"Our experience has proved that Ford Trucks can be operated at substantially lower maintenance costs than any other make we've tried. And, equally important in a fleet like ours, we find that our Fords spend much less time in the shop. None of the Ford units purchased since 1958 have been in for major repairs and I am still amazed at the way the older ones keep going.

"The best truck we've ever owned is a 1954 Ford C-700 that consistently carries a load of 350 to 400 blocks over all types of terrain. In spite of this severe work it ran 125,000 miles before we replaced the engine. This unit now has over 140,000 miles on the original ring gear and pinion and it went 60,000 miles before we relined the brakes and put in a new clutch. This is outstanding mileage when you consider that we've realized as little as 12,000 miles from competitive ring gear and pinion sets. Clutch and brake life obtained with other makes in identical service was only 20,000 miles. It's results like this that keep our costs low and convinced us that we should stay with Fords when we bought our bigger trucks in '58.

"Our 1958 and 1959 Ford Tilt Cab Tandems give every indication of equalling or surpassing the fine records set by the C-700. The two CT-950 tractors hauling sand and aggregates to our processing plant breeze through traffic and take the hills like they weren't there at all. Our CT-850 equipped with a flat-bed body has the power and traction to deliver finished products anywhere. With Ford's tilt-cab design we get a real plus as far as payload is concerned because we can carry at least 2,000 pounds more weight on the front axle.

"We buy Ford Tilt Cab Trucks because we think they're the best engineered and most modern gasoline trucks in the heavy-duty field. Here at last is a truck built to permit big legal payloads with enough power to move these loads at economical speeds. We pride ourselves on our modern and efficient equipment and consider our Fords one of the most valuable assets of our business."



'60 Fords are built for longer life . . . with Certified Durability!

Whatever your job . . . wherever you do it . . . you'll discover just as Mr. Cook did, that Ford Trucks are the best investment for your transportation dollar.

Certified results of tests conducted by America's leading independent research organization (name available on request) confirm the fact that Ford Super Duties have been refined for still more durability! Automatic radiator shutters, improved electric fuel pumps and redesigned wiring harnesses are typical of the advancements to be found in these units.

Automatic radiator shutters reduced the coolant temperature variation recorded in severe mountain road tests from a 79° range to a 20° range. Engine operation with coolant temperatures in the 167° to 187° range means less expansion and contraction, more efficient combustion and better lubrication . . . all of which contribute to longer engine life.

Dynamometer tests showed *no vapor lock* with Ford's submerged-type electric fuel pump at temperatures up to 200°. Incipient vapor lock with mechanical fuel pump resulted in a power loss of 9% under the same conditions. Shaker table tests plus constant exposure to oil, water and heat proved 1960 wiring harness to be *three times longer lived.*

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . BUILT TO LAST LONGER, TOO!

A man on a machine such as this, New York's Department of Sanitation feels, ought to clean ten curb-miles a day and do a better job . . .

New York Times photos

Ten Curb Miles A Day In Crowded Traffic

New York City is trying to find the right combination that will permit it to clean streets such as its internationally famous Times Square at the rate of ten curb miles per man per day instead of two. The latter figure is the average work-day of an industrious man with a broom and pushcart, working this area. New York's Commissioner of Sanitation Paul Screvane, hopes to find equipment that will permit one man to clean ten miles per day in the same area.

To find the mechanical equipment, the department has been testing several short-wheelbase sweepers. One of the most recent is the Tennant vacuumized unit. Mr. Robert L. Lindboe of the Tennant organization cleaned 58 blocks with this sweeper in a 1½-hour test run.

. . . than a man with a pushbroom who, working hard, can clean two curb-miles of streets in busy areas in the course of a day.

$50 Reward For Snitching On Litterbugs

The City of Dearborn, Mich. now offers a $50 reward to citizens who provide tips leading to the apprehension of trash tossers. The reward system is contained in the ordinance which provides a $100 fine for littering. Dearborn's Mayor Orville L. Hubbard proposed the reward system which was recommended by the City Beautiful Commission and it was adopted by the City Council. Carol Jean Molnar and Police Inspectors Clifford Gowing and Garrison Clayton, flanked by Ford station wagons, display the warning to litterbugs.

SAVE MONEY
with the Galion Model 503 Grader

Street Maintenance in **MISSOURI**

Road Maintenance in **OHIO**

Spreading Blacktop in **WISCONSIN**

Grading Housing Site in **WASHINGTON**

Grading Parking Area in **TEXAS**

The model 503 is economical in first cost, economical to operate, economical to maintain—and small enough to work efficiently in areas too confined for a large grader. Yet the 503 has sufficient weight and power—with "big grader" features and attachments—to do a wide variety of jobs with speed and profit.

The Galion 503 Motor Grader is available with a gasoline or diesel 58 hp engine. It has positive 4-wheel tandem drive and full hydraulic control. Extra large positive traction tires are same size front and rear.

Attachments for the model 503 include front-positioned hydraulic scarifier . . . booster power steering . . . hydraulic shiftable moldboard . . . leaning front wheels . . . hydraulic circle turn . . . stand-up height removable cab . . . snow plow . . . bulldozer . . . windrow eliminator . . . and creeper transmission (installed at the factory).

Backfilling Utility Line in **COLORADO**

Alley Maintenance in **MAINE**

You will invariably find owners and users (whether contractors or public officials) happy with the performance of the GALION 503 Motor Grader.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices—Galion, Ohio, U.S.A.
Cable Address—GALIONIRON, Galion, Ohio

GALION® ESTABLISHED 1907
MOTOR GRADERS • ROLLERS
VIBRATORY COMPACTORS • PNEUMATIC TIRE ROLLERS

THE GALION IRON WORKS & MFG. CO. Date_____
Dept. A-20, Galion, Ohio

Please send me complete information on the Galion Model 503 Motor Grader.

Name_____ Title_____

Firm or Dept. _____

Street_____ City_____ State_____

FREE CATALOGS

These Catalogs Will Help You

By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given or use the Post Card on page 55.

Galion's 503 Motor Grader

354 . . . does a wide variety of jobs with speed and profit. It is available with a gasoline or diesel 58-hp engine, has 4-wheel tandem drive and full hydraulic control, and works well in confined areas. For full facts on the Model 503 and its numerous attachments, write THE GALION IRON WORKS & MFG. CO., DEPT. A-20, GALION, OHIO.

Reline Pipe Lines In-Place

355 Rehabilitating pipe lines the Spunline way assures increase in flow and lower pumping costs, without removing the pipe and without interrupting traffic. Spunline may be used in cast iron, steel, concrete and wrought iron pipe lines down to 4". For full facts, write PIPE LININGS INC., P. O. BOX 457, 2414 E. 23RD ST., WILMINGTON, CALIF.

Do Utility Work Faster, Easier, Safer

356 A wealth of information on line construction bodies, service units, aerial equipment, derricks and jacks, diggers and augers and other mechanical equipment is to be found in a comprehensive catalog entitled "Bodies and Accessories for Utilities." It is available from the J. H. HOLAN CORP., 4100 W. 150TH ST., CLEVELAND 11, OHIO.

Sturdy, Nontipping Picnic Tables

357 TAK-A-PART picnic tables are easy to assemble, dismantle in minutes, store flat. "Walk-thru" design provides easy access; skid-type feet protect against turf damage. Welded steel tubing end frames support tables up to 10 feet in length. For catalog, write MIDWEST METAL STAMPING CO., KELLOG 2, IA.

Free Manual on Rust and Corrosion Control

358 This new 38-page systems catalog provides comprehensive treastise on rust and corrosion control by protective coatings with accent on color. Highlights are the Rust-Oleum New Color Horizons System, a gate-fold spread that unveils 67 actual color standards in the system, and 76 full-color applications and 110 color chips to show actual colors at a glance. For a copy, write RUST-OLEUM CORP., 2799 OAKTON ST., EVANSTON, ILL. Request *Form* No. 259.

How to Get Maximum Results from a Microfilm System

359 *Basic Microfilm Indexing and Filing Techniques* emphasizes the fact that planning is the most important key to any successful indexing and filing system and gives detailed information on how to implement a program and how to make the most economical and efficient use of microfilm. For a copy, write CHARLES BRUNING CO., INC., 1800 W. CENTRAL RD., MOUNT PROSPECT, ILL.

Low-Cost Shower Facilities for Recreation Areas

360 *Bulletin* H-1322 describes all models of Bradley multiperson showers, clearly pointing out that each column has 5 shower heads, requires one set of piping connections yet allows each bather to individually control water volume and temperature. For a copy, write BRADLEY WASHFOUNTAIN CO., 2333 W. MICHIGAN ST., MILWAUKEE 1, WIS.

Controls for Outdoor Lighting Circuits

361 If you are interested in obtaining information on a dependable line of switches and relays for the control of series or multiple circuits for street lighting, athletic field lighting and airport lighting, write SOUTH BEND CURRENT CONTROLLER CO., INC., 1237 NORTH BLVD., SOUTH BEND 15, IND.

Rids Hands of Grease and Grime

362 Go-Jo hand cleaner is a powerful antiseptic that protects against industrial dermatitis yet contains soothing emollients to prevent skin drying. It is ideally suited for use in municipal plants and workshops. And Go-Jo dispensers will save time and reduce clean-up costs 75%. For further information, write GOJET, INC., DEPT. AC 160, BOX 991, AKRON 9, OHIO.

Transportation Tokens

363 Numerous cities using metal fare tokens for transit find them ideal for multifare and fractional-fare systems, for they speed handling, eliminate change-making delays, assure accurate sorting, counting and wrapping by maintenance of identical size. MEYER & WENTHE, INC., TRANSPORTATION DIV., 30 S. JEFFERSON ST., CHICAGO 6, ILL. can provide you with the facts.

2-Inch Self-Priming Centrifugal Solids Handling Pump

364 The impeller design of Model 12B2 permits the passing of spherical solids up to 1⅛" in diameter. The pump mounts high and dry, with only the suction in the sump. Endplate is removable, wearplate is renewable. Capacities range from 40 to 220 gpm. For literature, write THE GORMAN-RUPP CO., 305 BOWMAN ST., MANSFIELD, OHIO.

Heavy-Duty Air-Cooled Engines

365 The engines described in *Engine Bulletin* S-249 are of heavy-duty design and construction and are built to stand up to hard service and weather extremes from low sub-zero weather to 140° F. They are custom-built to fit the machine and the job for which they are to be used. Write WISCONSIN MOTOR CORP., DEPT. U-10, MILWAUKEE 46, WIS.

Pole Bases for Low-Cost Outdoor Lighting

366 *Bulletin* 25 describes all models of the Hope metal-pipe pole base, a rugged and durable malleable cast-iron support for threaded outdoor lighting uprights with its own chamber for splicing and grounding. For a copy, write HOPE ELECTRICAL PRODUCTS CO., 53 LONG AVE., HILLSIDE, N. J.

Fire Hydrant Manual

367 The A. P. SMITH MFG. CO., EAST ORANGE, N. J., has published a 20-page manual covering the operation, construction and maintenance of its new Model H100 fire hydrant. Illustrated with detailed cutaways and mechanical drawings, the H100 manual also describes procedures for installation and inspection.

When Oil-Free Air Is Required

368 In municipal water, power, sewage plants—in general wherever internal combustion engines are used—the "DA" dry-type filter sees excellent service. It gives an extremely high degree of filtration (better than 98% efficiency on 2-micron mean diameter particles, 100% on 5 microns or larger). *Bulletin* DA-1056 gives full facts. Write AIR-MAZE CORP., DEPT. AM-2, CLEVELAND 28, OHIO.

Sound Cameras for Law Enforcement

369 The Auricon 16mm Sound-On-Film cameras described in a new catalog are designed for specific requirements of police chiefs, district attorneys and other law enforcement officials who have need for conclusive motion picture evidence for their work. For a copy of the catalog, write BERNDT-BACH, INC., 6950 ROMAINE ST., HOLLYWOOD 38, CALIF.

Auxiliary Equipment for Caterpillar

370 Tool bar attachments, snow plows, angling blade dozers, earth augurs, inside dozers, U-shaped blades and bulldozers are all featured among the complement of auxiliary equipment and attachments made by BALDERSON, INC., WAMEGO, KAN., for Caterpillar equipment. Specifications, features and applications available on request.

Municipal Accounting

371 Seeking to improve your municipal accounting procedures and save time and money? Then you'll want to investigate the National System. Robbinsdale, Minn. did and now saves $7,700 a year. Write THE NATIONAL CASH REGISTER CO., DAYTON 9, OHIO.

Chain Saws

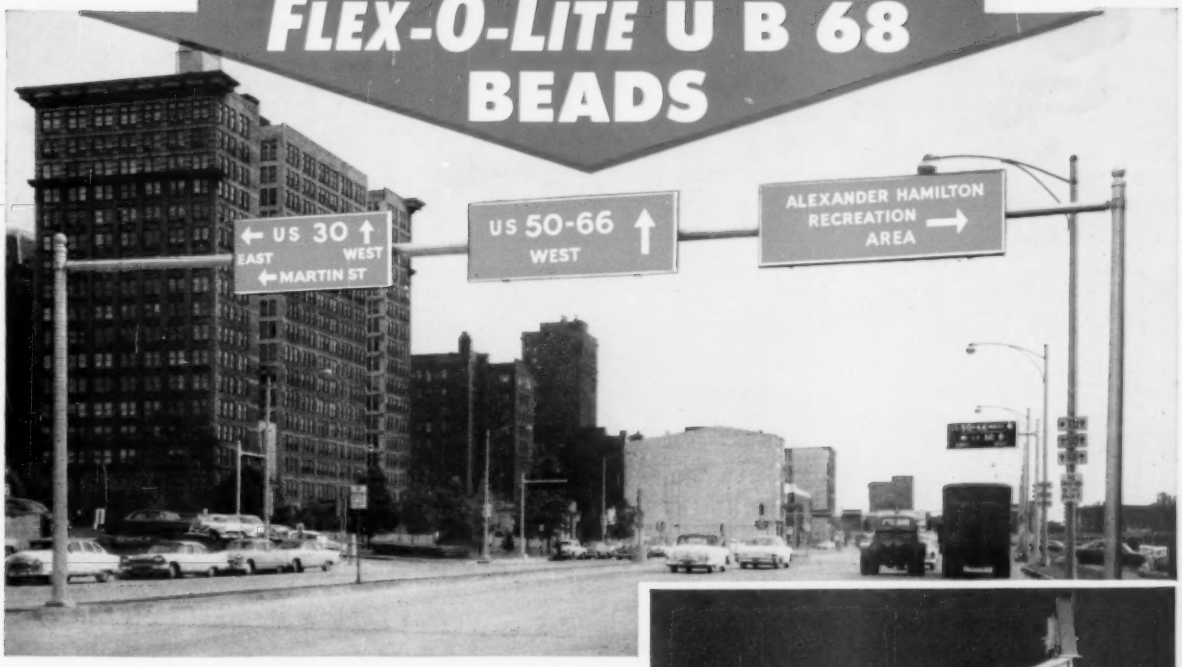
372 These chain saws are packed with power for easy cutting. They are described and illustrated in the 20-page booklet "Remington 1960 Chain Saws," available from REMINGTON ARMS CO., INC., BRIDGEPORT 2, CONN.

(See page 50 for more Bulletins)

Now! REFLECTIVE SIGNING at its BEST

for Modern High Speed Thruways

FLEX-O-LITE U B 68 BEADS

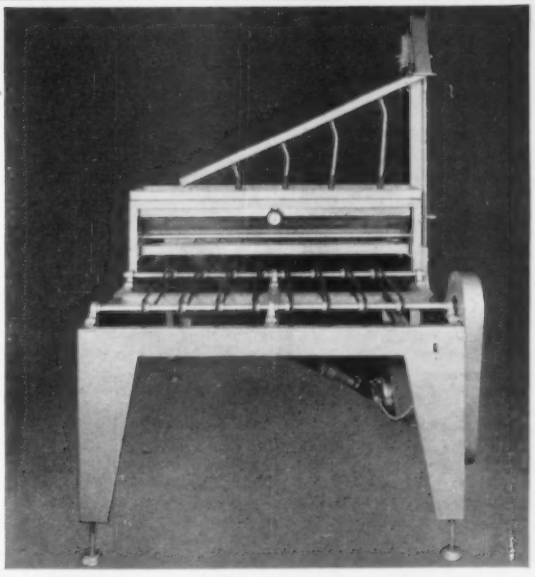


Reach New High in Performance and Safety Features

What features do you want most in your reflective sign projects? Unfailing day and night reflectorization? Chemical stability? Maximum angularity? Longer life? Ease of application? Minimum maintenance? Unquestionably you want all six, and you get them all in new Flex-O-Lite U B 68, medium index Reflective Glass Beads. Designed for 'round-the-clock protection on the nation's highways, their application to signs in the darker pigmented colors (greens, reds, blues) assures maximum reflectivity and eye-catching brilliance — for outstanding service in the cause of safety under all weather conditions.

A notable addition to the Flex-O-Lite line, U B 68 reflective glass spheres take their place as a worthy companion product to #831 High Index Beads, now the universally accepted standard for white and yellow traffic signs, street name signs and license plates.

Write for fully descriptive literature and specifications today, or use the handy coupon.



NEW! Improved Flex-O-Lite Bead Dispenser

For reflectorizing panels up to 48" wide. Ideal for application of UB 68 beads on backgrounds of large signs. Mechanical data, prices on request.

FLEX-O-LITE MANUFACTURING CORP.

8301 FLEX-O-LITE DRIVE

P. O. BOX 3066 (AFFTON BRANCH) • ST. LOUIS 23, MISSOURI

MAKERS OF DROP-ON • FREE-FLOWING • STANDARD • MILITARY MOISTURE PROOF • MEDIUM AND HIGH INDEX SIGN BEADS

Flex-O-Lite Manufacturing Corporation, 8301 Flex-O-Lite Drive P. O. Box 3066 (Affton Branch), St. Louis 23, Missouri

Please rush the following:

- ☐ Complete Data on U B 68 Reflective Beads.
- ☐ Bulletin on #831 Reflective Beads.
- ☐ Specifications on New 48" Bead Dispenser.

Name_____

Address_____

City_____ Zone____ State____

FREE catalogs

Write directly to the address given or use the Post Card on page 55.

Spreaders for Sealcoating

373 These units operate at speeds up to 30 mph (forward or reverse) and spread steadily or intermittently, salt, calcium chloride, sand, gravel, cinders or any combination of these materials in any desired quantity. They are available in various sizes to fit any dump truck box. For descriptive literature, write SWENSON SPREADER & MFG. CO., LINDENWOOD, ILL.

Long Pinch Pintle Chain for Sewage Plants

374 Designed and proportioned to provide great strength at minimum weight, to prevent entrance of grit, and to wear longer, this long pinch pintle chain proves itself ideally suited for use with scum removers, sludge collectors, and grit washers. For descriptive literature, write MOLINE MALLEABLE IRON CO., ST. CHARLES, ILL.

Municipal Supplies Catalog

375 Communities of every size will find much to meet their municipal needs in the 120-page *Municipal, Police, Signs, Supplies Catalog* (No. 104) now being offered by SARGENT-SOWELL, INC., 1172 107TH ST., P. O. BOX 868, GRAND PRAIRIE, TEXAS.

Large Capacity Mower

376 Seeking an easy riding, perfectly balanced, highly maneuverable, rugged, large-capacity reel-type mower to minimize lawn area maintenance? Then you'll want details on the Turf-King 76. Features include 76-inch cutting width, variable forward speeds from ½ to 4¼ mph, and wing units capable of cutting 25 degrees up or down. Write JACOBSEN MFG. CO., DEPT. AC1, RACINE, WIS.

A New Refuse Box

377 This new refuse collection body is a product of the PACEMASTER CORP., 725 S.W. WASHINGTON ST., PEORIA, ILL., and has been designed with the small- and medium-sized operator in mind. Descriptive literature explains why it costs less to operate, less to maintain, less to own, and how, when used with the Roll-A-Way garbage box, it allows more pick-ups per day and faster unloading.

Seepageproof Reservoirs

378 If you are faced with a seepage problem on reservoirs or canals, the latest *Engineering Brochure* from GULF SEAL CORP., DIVISION OF BRAMBLE INDUSTRIES, MELROSE BLDG., HOUSTON 2, TEXAS, will be of interest to you. It explains a proven new technique for solving this problem and documents the experience of numerous cities using this technique.

New 4-Wheel Drive Tractor Offers Power, Traction, Economy

379 A low-cost, 4-wheel drive tractor (W4G062) designed for light industrial and construction work is available in four different, hydraulically operated and ready equipped models: bulldozer, grader clam, roll bucket, and loaded. These sturdy, 2000-pound units have a turning radius of 12"—in a 6' curb to curb circle. For specifications, write DETROIT TRACTOR LTD., 1221 E. KEATING AVE., MUSKEGON, MICH.

Truck Safety Accessories

380 Municipal men responsible for city-owned fleet maintenance will find in one place a wide assortment of truck safety accessories. The place is *Catalog* A-4059. The 28 pages of reflectors and lamps, rear view mirrors, flares and flashers are conveniently indexed on the front cover. For a copy, write THE GROTE MFG. CO., INC., BELLEVUE, KY.

New Water Purifier for Swimming Pools

381 PadChem PC3 is a highly stabilized form of pool chlorine. Tests report it to be less affected by the sun than liquid chlorine and less irritating to eyes and skin. It is available in powder form, is said to cost no more than liquid chlorine, and is reported to retain its maximum effectiveness longer than liquid chlorine. For full facts, write PADDOCK OF CALIFORNIA, 14606 ARMINTA ST., VAN NUYS, CALIF.

Helicopters for Municipalities

382 Helicopters for traffic control, fire department use, and disaster relief are among the topics covered by a 12-page booklet released by HILLER AIRCRAFT CORP., COMMERCIAL DIVISION, 1350 WILLOW RD., PALO ALTO, CALIF. The booklet also reveals how eligible communities pay only half the purchase price for Hiller 12Es under federal Office of Civil Defense and Mobilization purchase plans.

(See page 51 for more Bulletins)

The Solution to Your Parking Problems . . . Automatically
Lower Cost—Higher Revenue

Before you consider any other method of controlling off-street parking—investigate Parcoa! Make a careful comparison between Parcoa equipment and other parking controls. Note, for example, the low initial cost of Parcoa and the high costs of meters . . . Analyze maintenance problems . . . 2 gates means 2 points of service . . . 1 collection point . . . 50 meters means 50 points of service and 50 points of collection.

Parcoa permits parking to continue day and night, *smoothly, safely, quickly,* without interruptions, confusion or overcrowding.

Here is an automatic system designed by skilled engineers for operating simplicity, low first cost, low operating cost . . . an investment that actually pays for itself. Parcoa offers 100% collection . . . ease of maintenance. Hundreds of satisfied customers in industry, hospitals, schools, business and municipalities have proved the dependability and efficiency of Parcoa equipment.

Investigate Parcoa—learn the many benefits and advantages . . . It may be the solution to your parking problems, too . . . Write today for Bulletin No. 580.

FLEXIBLE OPERATION
These control types give you a choice of individual or combination of controls to fit your needs.

CODED CARD-KEY
for cars parking on monthly or reserved basis.

COIN OPERATION
for controlled transient parking.

TICKET ISSUING SYSTEM
for merchants restricted free parking service.

TIME-DATED TICKET DISPENSER
for automatic self service in merchant participation parking.

PARCOA® DIVISION

Johnson Systems SINCE 1909

JOHNSON FARE BOX COMPANY • Subsidiary of BOWSER, INC.
4621 North Ravenswood Ave., Chicago 40, Illinois • Telephone: LOngbeach 1-0217

DISTRICT FIELD OFFICES: NEW YORK: 420 Lexington Ave., New York 17, N.Y. CLEVELAND: 4209 W. 150th St., Cleveland 11, Ohio. SAN FRANCISCO: 468 Ninth Street, San Francisco 3, Calif. ATLANTA: 741 Boulevard N. E., Atlanta 5, Georgia.

SALES AND SERVICE OFFICES IN OTHER MAJOR CITIES LISTED UNDER BOWSER, INC.

CATALOGS for Improved Municipal Services

Write directly to the address given or use the Post Card on page 55.

1960 Fir Plywood Catalog

383 This new, 16-page quick-reference catalog, indexed for A. I. A. filing, contains basic information on fir plywood standard grades and specialty products for engineers, architects and building code officials. It is available from DOUGLAS FIR PLYWOOD ASSOCIATION, TACOMA 2, WASH. along with two other booklets on western softwood plywood that gives details on recommended uses of this product.

Truck Crane Has 280° Boom Swing

384 This truck-traveling crane requires only 18″ mounting space, lifts 2½ times as much as most end loaders, is 100% hydraulically operated and is available with a choice of booms. Descriptive literature, available from ANTHONY CO., STREATOR ILL., will give you the full facts.

Portable, Jobsite Water Coolers

385 These rugged, galvanized steel double wall containers keep water pure and cool. They are available in 1½ through 25 gallon sizes and feature recessed spigot and rounded seamless bottoms. Several models are available: all have a non-toxic inner coating. For full facts, write HORTON EQUIPMENT CO., P. O. BOX 2611, HOUSTON 1, TEXAS.

Pedestrian Traffic Signal

386 This larger, brighter, more readable traffic aid has 37% more effective lens area. It is ideal for crossings 50′-60′ wide—residential areas, school crossings, small shopping areas. *Bulletin* 2716 contains complete information and specifications on the MP-120. Write CROUSE-HINDS, SYRACUSE, N. Y.

Budget-Priced Bituminous Distributor

387 This unit is entirely new to the "South Bend" product line. It is designed to heat and apply all grades of bituminous material efficiently and economically. Features include an "Easy-Flo" piping system, heated fog-free engine and pumping housing, fireproof burner boxes. For illustrated literature, write MUNICIPAL SUPPLY CO., 2510 S. MAIN ST., SOUTH BEND 23, IND.

Multipurpose Scraper

388 The IMCO Landscraper, just announced by INDEPENDENT MFG. CO., NEODESHA, KANS., attaches to any 3-point hitch tractor. It will scarify, grade, level, scrape and backfill and is available in 5½ and 6-foot widths. Three settings enable the operator to adjust teeth for scarifying, scarifying and grading, or for grading only.

Diaphragm Pumps

389 These pumps are designed especially for the handling of high-solid-content water and for positive control of seepage. They are compactly built, mounted on wheels and available in four models: 1½″ 2″, 3″, 4″. They are new to the "Torrent" line of centrifugal pumps. Detailed information is available from HALE FIRE PUMP CO., CONSHOHOCKEN, PA.

(See page 52 for more Bulletins)

MORE PRACTICAL ENGINEERING than any other utility tractor

Allis-Chalmers utility tractors have it! Check the facts: Profile is low, operators see where they're working. Clearance is *high*, the machines move over rock, dirt, spoil, without hanging up. Weight is spread out over a longer wheelbase for stability, yet it out-maneuvers other machines in tight quarters.

You get "won't quit" power, too. You get quick direction reversing with the smooth new SHUTTLE Clutch for D-14 Tractors, power steering and a dozen more features that make sense on the job! It doesn't cost to get complete information about an Allis-Chalmers utility tractor. Use the coupon below . . . *today!*

D-10 • D-12 • D-14 • D-17

Utility tractors from 31 to 63 engine horsepower with companion equipment to match your needs!

ALLIS-CHALMERS

60-1

ALLIS-CHALMERS MFG. CO
Utility Tractors & Equipment, Milwaukee 1, Wisconsin

Please send me more information about Allis-Chalmers utility tractors with ☐ backhoe ☐ loader ☐ fork lift

Name_____

Firm_____

Address_____

City_____ State_____

SOLD BY ALLIS-CHALMERS DEALERS EVERYWHERE

Use Northern Gravel for Rapid Sand Filter

C. F. Bufe, Superintendent, reports that the filtering material used in the Wyandotte, Michigan water plant was received as ordered from the Northern Gravel Company and has done a very satisfactory job for their city.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** **Phone: AMherst 3-2711**

YOU NEED *These catalogs*

Write directly to the address given or use the Post Card on page 55.

Protective Coatings for Sewerage Plants

390 Protective coatings for walls, beams, hoppers, pipes, etc. in sewerage plants must meet the challenge of chemical fumes, resist corrosion, be able to cover almost any surface material and have long life. Coatings based on Parlon chlorinated rubber meet these requirements. For details, write HERCULES POWDER CO., 900 MARKET ST., WILMINGTON 99, DEL.

Digging, Rehandling Buckets

391 By writing to DEPT. A, THE HAYWARD CO., 50 CHURCH ST., NEW YORK 7, N. Y., you can obtain illustrated, descriptive literature on a complete line of orange peel buckets for every digging and rehandling need plus dwarf and catch-basin buckets. Weights and dimensions are included.

Surveyor's Level

392 Municipal engineers and surveyors will find this compact instrument (4½" x 6") easy to operate, speedy for set-up and reading, and able to withstand rugged field conditions. *Booklet* N-10 gives full facts. Write WILD HEERBRUGG INSTRUMENTS, INC., MAIN AT COVERT ST., PORT WASHINGTON, N. Y.

Compactors and Rollers

393 Nine models of high-frequency vibrating compactors from 13" to 72" widths and 14 models of tandem rollers from ½ to 14 tons are described in brochures currently available from ESSICK MFG. CO., 1950 SANTA FE AVE., LOS ANGELES 21, CALIF.

Rugged Snow Plows

394 These heavy-duty plows are designed to provide safe, speedy snow removal on streets, highways, parking lots, roads and airports. They are available in several models—reversible, one-way, V, and rigid—and are carefully described in literature offered by GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

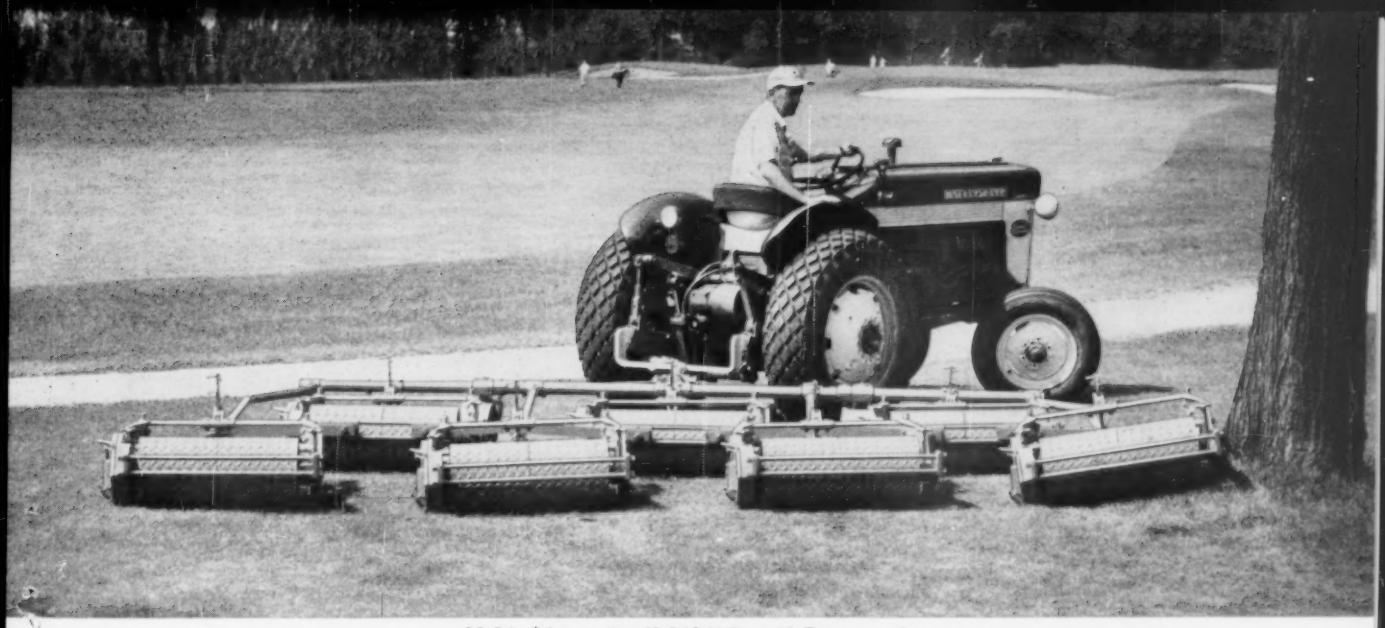
Got a Sewer-Cleaning Headache?

395 The new Sewerking catalog just might help you get rid of it. For it describes a way to clean sewers that will take care of any emergency promptly, will enable you to run a proper maintenance program; and is likely to reduce costs 50% to 75%. For a copy, write O'BRIEN MFG. CORP., 5632 NORTHWEST HIGHWAY, CHICAGO 46, ILL.

5c Print Replaces 40-Page Reports

396 The story of Wassell Produc-Trol progress boards is told in a new folder, "Now Produc-Trol Goes to Press . . . with Ozalid." The inside spread is printed on Ozalid paper and is a facsimile of an actual report which makes hundreds of facts visible on a single page. Detailed how-it's-done data are included. Copies are available from WASSELL ORGANIZATION, INC., WESTPORT CONN., or from OZALID DIV. OF GENERAL ANILINE AND FILM CORP., JOHNSON CITY, N. Y.

(See page 54 for more Bulletins)



38.5 hp* International® 240 Utility with 7-gang reel mower.

13.4 hp* Farmall Cub® with International Danco 60-inch rotary mower.

61 hp* International 460 Utility with International Wagner backhoe and loader.

45 hp* International 340 Utility with 5-gang mounted reel mower.

Your tractor budget goes further at your IH dealer!

Your 1960 equipment budget will look bigger after you've seen International's *complete* lineup of utility power! That's because you will find an International sized, priced, and powered to match exactly *each* of your specific power needs. No "make-do" with one too small or too large. Five rugged Internationals from 13.4 to 61 hp*—including the new cost-saving 35 hp* "B-275 Diesel"—let you put *all* your operations on a budget-matched, power-saving base. And it's power you can count on!

These are *IH-tough* tractors—built with stamina to provide an extra margin of dependability—more seasons of full rated performance. Even more, you can specify the job-matching options you want, such as power steering, Torque Amplifier drive, or Fast Reverser, to save costly operating time.

**Maximum flywheel hp at standard sea level conditions.*

Learn how the budget-slashing, new B-275 Diesel can cut your costs. Visit your nearby IH dealer . . . see why the new B-275 Diesel and other job-matching Internationals give you *both* high performance and low maintenance. Also ask about the full line of unit-engineered equipment. For name of your IH dealer and catalog, write International Harvester Co., Dept. AC-2, P. O. Box 7333, Chicago 80, Illinois.

See your INTERNATIONAL HARVESTER dealer

International Harvester products *pay for themselves in use* —Farm Tractors and Equipment . . . Twine . . . Industrial Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois

FREE catalogs

Write directly to the address given or use the Post Card on page 55.

1960 Ephemeris for City Engineers

397 Do you know which way is north in your city *for sure?* Your city engineer can tell you precisely if he has a copy of the 1960 Gurley Ephemeris. For the first time, it shows northern, southern and equatorial stars (these are keyed to tables) and includes bound-in charts for simplifying the computation of Polaris. For a copy of this valuable 92-page booklet, write W. & L. E. GURLEY, TROY, N. Y.

1960 Cushman 780 Truckster

398 These lightweight hauling vehicles come with built-in economy—small initial investment, minimum maintenance expense, operating cost of less than a penny a mile, and saving on taxes and insurance. They can carry an 800-pound payload and maneuver easily in crowded quarters. For literature, write CUSHMAN MOTORS, 944 NO. 21ST, LINCOLN, NEB.

Purchase Order Copying Made Easy

399 Ways in which purchasing agents in a number of businesses are using Verifax Copiers to speed basic purchasing-receiving operations while cutting costs and eliminating errors are outlined in a new 4-page leaflet, available from EASTMAN KODAK CO., BUSINESS PHOTO METHODS DIVISION, ROCHESTER 4, N. Y.

Front-End Crawler Loader Has 40,000-pound Breakout Force

400 *Bulletin* L-1092 gives facts and specifications on the Eimco 126 front-end loader, equipped with 205-hp diesel engine teamed with "Unidrive" transmission, single stage torque converter and dual final drives for ease of maneuverability and control. For a copy, write THE EIMCO CORP., P. O. BOX 300, SALT LAKE CITY 10, UTAH.

Signs and Markers

401 The current sign catalog from LAKE SHORE MARKERS INC., 654 W. 19TH ST., BOX 59, ERIE, PA., includes a fine grade of permanent historical, professional and municipal street signs and golf course and cemetery markers.

Full Keyboard Adding Machine

402 For those who prefer a full keyboard, Remington Rand offers an electric adding machine with special features, such as color separations between 10's, 100's and 1000's. The adding machine will list up to $99,999.99, and will total to $999,999.99. It is designed for payroll work and cost accounting. For details, write REMINGTON RAND, 315 PARK AVE., NEW YORK 10, N. Y.

Produce More Trench for Less Money

403 Current literature from the CHARLES MACHINE WORKS, INC., PERRY, OKLA., describes several models of Ditch Witch trenchers, which operate at trenching speeds of 1½ to 12 rpm and are suited for utility services, gathering lines, signal lines, sewer laterals, road crossings, sprinklers, footings.

For Dependable Water Metering Control

404 These accurate propeller meters can be installed quickly and easily on new or existing lines, in horizontal, vertical or inclined positions. They can be equipped with the new Badger outdoor Read-o-Matic register for economical meter reading. But for full facts, write for descriptive literature to MEASURERITE, INC., 4545 W. BROWN DEER RD., MILWAUKEE 18, WIS.

Four New Motor Graders

405 HUBER-WARCO COMPANY, MARION, OHIO manufacturer of grading and rolling equipment, announces four new motor graders for 1960, each bigger, heavier, stronger, more economical to operate and maintain and featuring constant mesh transmission. Horsepower ranges from 83 through 160. Literature available on request.

Packaged LP-Gas Mixer

406 The self-contained Multi-Jet mixer, designed for the plant with a varying load, provides an interchangeable fuel for natural gas and assures critical control and uniformity of Btu sendout and more flexible low-load operation. It is well suited as a standby unit for the community with its own gas system. For literature, write DRAKE & TOWNSEND INC., 11 W. 42ND ST., NEW YORK 36, N. Y.

Speed Bridge Construction

407 AMERICAN-MARIETTA CO., CONCRETE PRODUCTS DIV., 101 E. ONTARIO ST., CHICAGO 11, ILL., has available a wealth of valuable literature on precast and prestressed concrete bridge members—including Amdek, I-Beams and Channel Slabs—designed to help you speed construction and save considerable money.

Cut Cost of Land Clearing

408 If the job calls for cleaning up tree damage from wind, ice and snow storms or maintaining rights of way, and you want that job to move quickly and inexpensively, put a Homelite one-man chain saw to work. It will fell a 20" tree in 18 seconds. *Bulletin* L-1916 details the full line and attachments. Write HOMELITE, A DIV. OF TEXTRON INC., 110 RIVERDALE AVE., PORT CHESTER, N. Y.

Digging, Rehandling Buckets

409 By writing to DEPT. A, THE HAYWARD CO., 50 CHURCH ST., NEW YORK 7, N. Y., you can obtain illustrated, descriptive literature on a complete line of orange peel buckets for every digging and rehandling need plus dwarf and catch-basin buckets. Weights and dimensions are included.

Dependable Power for Municipal Operations

410 Valuable literature from WAUKESHA MOTOR CO., WAUKESHA, WIS., not only details its complete line of heavy-duty gas, gasoline and diesel engines, but shows why Roiline engines deliver more horsepower per fuel dollar and long service with minimum maintenance and low upkeep.

Reliable Electric Generating Plants

411 *Folder* H-42 will acquaint you with these stand-by plants that are fully packaged for immediate, unattended take-over of emergency loads and are available in sizes to 100 kw, gasoline or diesel. These plants will enable you to meet reliably and economically new OCDM requirements. Write KOHLER CO., KOHLER, WIS.

Blowers, Pumps and Meters

412 ROOTS-CONNERSVILLE BLOWER DIVISION OF DRESSER INDUSTRIES, INC., 60 CARLTON AVE., CONNERSVILLE, IND., is offering several equipment information bulletins. *Bulletins* AF-258, RAS-158 and RB-154 detail rotary positive blowers for pressure or vacuum service; *Bulletin* VP-158 rotary vacuum pumps; *Bulletin* 120-B-14, centrifugal blowers; *Bulletin* XA-458 and 32-33-B, rotary positive gas pumps; and *Bulletin* M-258, rotary positive meters.

Counts Cars In and Out of Parking Areas

413 CHEKAR, the ultra-sonic vehicle detector, notes all cars entering a lot or a garage and gives information on space availability. Installed overhead, it is away from vandals and pavement hazards. In addition, it can count vehicles, and can be used to actuate traffic signal controllers in a given lane and to operate gates and ticket dispensers in parking areas. For details, write GENERAL RAILWAY SIGNAL CO., P. O. BOX 600, ROCHESTER 2, N. Y.

Plastic Pipe and Fittings

414 "Super-Flex" pipe is made from an improved and denser polyethylene resin which provides greater strength and high working pressures, as well as reduced weight and outside diameters. In addition, this pipe offers high resistance to rot, corrosion and galvanic action. *Catalog Section* PP gives full facts; it is available from GOODALL RUBBER CO., WHITEHEAD RD., TRENTON, N. J.

Designed for Mosquito Control

415 The new Model 51 Rotomist is a self-contained, compact and economical air-type mist sprayer. It has a 21" axial-flow fan and Hypro pump producing 15 gpm at 150 psi. It can be placed on various mountings including a pick-up truck. JOHN BEAN DIV. OF FOOD MACHINERY AND CHEMICAL CORP., LANSING 4, MICH. designed it especially for mosquito control.

Outdoor Floodlighting

416 There's a Stonco floodlight to suit virtually any application — from small area units for residential use to heavy-duty Power-Beams for sport installations. For complete floodlight listings, specifications and features, write for Section S, Stonco general catalog. Address requests to STONCO ELECTRIC PRODUCTS CO., 333 MONROE AVE., KENILWORTH, N. J.

Small Water Filter

417 *Bulletin* Ref. No. 1860.20-2 contains photographs, cut-away views, dimensional drawings, capacity charts and descriptive information on the Proportioneers Model VFC concentric and the Model VFL flat leaf vacuum filters designed for efficient filtration of municipal potable water supplies and commercial and municipal swimming pools. A copy can be obtained from B-I-F INDUSTRIES, INC., 345 HARRIS AVE., PROVIDENCE 1, R. I.

Handles Volume Accumulations of Trash and Refuse

418 Municipalities who face the problem of long hauls to refuse disposal areas take note: a new hydraulic compaction trailer holds up to approximately 210 cubic yards of loose refuse. It can be used in conjunction with detachable container systems of refuse storage, as portable dumps or transfer storage stations. For full facts, write DEMPSTER BROTHERS, DEPT. CT-84, KNOXVILLE, TENN.

(See page 58 for more Bulletins)

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

FEELING OUT-OF-DATE?

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows: starting on page 48

354	366	378	390	402	414	426	438	450	462	474
355	367	379	391	403	415	427	439	451	463	475
356	368	380	392	404	416	428	440	452	464	476
357	369	381	393	405	417	429	441	453	465	477
358	370	382	394	406	418	430	442	454	466	478
359	371	383	395	407	419	431	443	455	467	479
360	372	384	396	408	420	432	444	456	468	480
361	373	385	397	409	421	433	445	457	469	481
362	374	386	398	410	422	434	446	458	470	482
363	375	387	399	411	423	435	447	459	471	
364	376	388	400	412	424	436	448	460	472	
365	377	389	401	413	425	437	449	461	473	

I would also like to receive manufacturer's booklets on.....
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Name: (Please Print).....

Title:.....

Address:.....
..... 2-60

A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:
Please send me further information on products described in "Purchasing News" section beginning on page 197 as circled below:

804	809	814	819	824	829	834	839
805	810	815	820	825	830	835	840
806	811	816	821	826	831	836	841
807	812	817	822	827	832	837	842
808	813	818	823	828	833	838	843

I would also like to receive manufacturer's booklets on: .....

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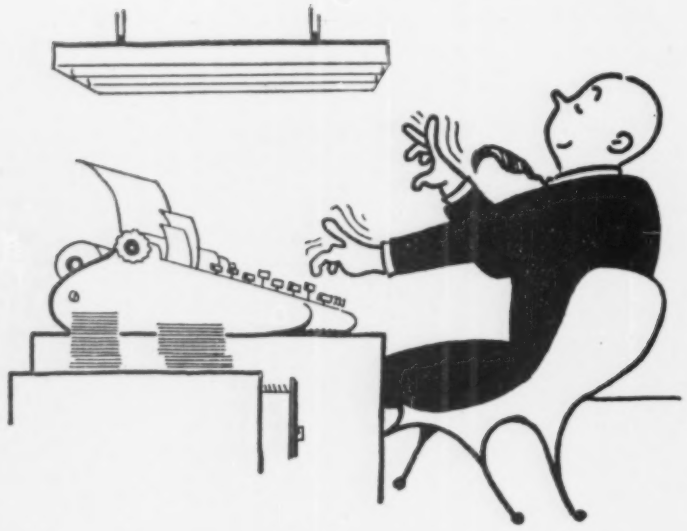
Name: (Please Print) .....

Title: .....

Address: .....

..... 2-60

A Listing of Your Business Connection is Important



KEEP UP WITH THE TIMES!

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BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

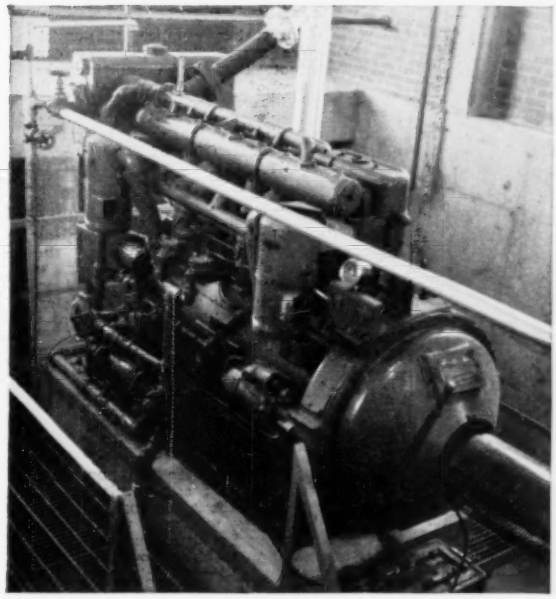
Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

ROILINE ENGINES (Formerly LE ROI)

* The trade mark LE ROI is used under license from Westinghouse Airbrake Co., the trade mark owner.

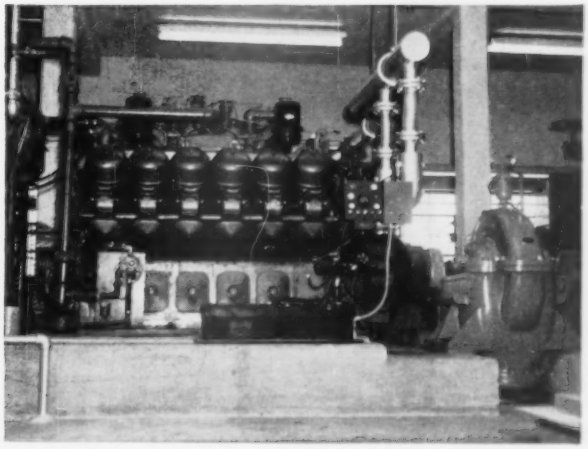
POWER FOR MUNICIPAL PLANTS

Three ROILINES pull the pumps at Oklahoma City's Lake Hefner Municipal Filtration Plant.



Model F-1500, maximum horsepower 215 at 1200 rpm on natural gas.

Model L-3460, maximum horsepower 595 at 1350 rpm on natural gas.



BASIC ENGINE CHARACTERISTICS*

GASOLINE OR NATURAL GAS					600	800	1000	1200	1400	1600	1800	2000	2200	2400
MODEL	Bore & S.	Cyls.	Displ.	Torque–rpm	BRAKE HORSEPOWER AT ENGINE SPEEDS INDICATED									
H540	4½ x 4¼	8	540	430- 900	...	64	82	99	115	130	143	155	164	170
H844	5¼ x 4⅞	8	844	637-1500	...	106	135	165	191	215	237	255	270	278
F1500	6¾ x 7	6	1503	1090- 650	125	165	200	215						
H2000	6¾ x 7	8	2004	1485- 650	170	225	270	290						
L3000	6¾ x 7	12	3006	2200- 650	250	335	405	435						
L3460	7¼ x 7	12	3468	2570- 900	285	391	492	568	595 @ 1350 RPM					
L4000	7.54 x 7.5	12	4000	2930- 900	325	446	560	645						

*With oil pump, water pump, magneto, air cleaner, carburetor, and exhaust muffler. Hp shown is maximum.

SEE YOUR ROILINE ENGINE DISTRIBUTOR

ARIZONA, Casa Grande, Engine Service Company, Inc.
ARKANSAS, Paragould, Wonder State Manufacturing Co.
CALIFORNIA, Long Beach, Engine & Equipment Company
COLORADO, Denver, Emrick & Hill Engine & Equipt. Co.
KANSAS, Garden City, Carson Machine & Supply Co.
LOUISIANA, New Orleans, Southern Engine & Pump Co.
MICHIGAN, Reed City, Hafer Engine Company
NEW YORK, Syracuse 6, J. C. Georg Corporation
OHIO, Columbus 19, Cantwell Machinery Company
OKLAHOMA, Oklahoma City 9, Carson Machine & Supply Co.
PENNSYLVANIA, Bradford, R. R. Reck Company
TEXAS, Houston 1, Southern Engine & Pump Co. (also in Beaumont, Corpus Christi, Dallas, Edinburg, Kilgore, San Antonio)
Lubbock, Farmers Supply
Odessa, General Machine & Supply, Inc.
Wichita Falls, Nortex Engine & Equipment Co.
WYOMING, Casper, Emrick & Hill Engine & Equipt. Co.

424-R-1

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS. / **New York • Tulsa • Los Angeles**
Factories: Waukesha, Wisconsin and Clinton, Iowa

MONEY SAVING *catalogs*

Write directly to the address given or use the Post Card on page 55.

"Chain Grate" Incinerator—A Success Story

419 Municipal refuse men will be interested in literature offered by ILLINOIS STOKER CO., ALTON, ILL., which points out the advantages of continuous-feed, continuous-discharge type incinerator grates and details their record and successful use in New York City's Gansvoort incinerator plant.

Cleans Streets in Summer, Plows Snow in Winter

420 Knife-edged high pressure streams of water emitted by this street flusher clean streets up to 42 feet wide—even under parked cars. A special attachment in front of the radiator grill adapts it to winter snow removal. For details, write E. D. ETNYRE & CO., OREGON, ILL.

Accurate Chlorine Control

421 "The V-notch Story" gives full facts about the W & T V-notch chlorinator, a chlorine-proof unit with V-notch plug made to control chlorine completely to 1/800 of the maximum capacity of your machine. For a copy, write WALLACE & TIERNAN INC., 25 MAIN ST., BELLEVILLE 9, N. J.

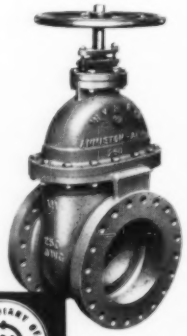
HOW WOULD YOU VOTE?

The growth of American industry and agriculture, the rise in standard of living, war-caused shortages of materials, the high cost of economic inflation, all have combined with public indifference to create a 30-year-period of delay in water works improvements . . . a situation now serious, and which could become tragic.

Since most water works now are public utilities, they are also a public responsibility. Capable men are employed to manage them, but the public must finance them. A water works utility economically may be and usually is a non-profit organization. But like other business operations, it encounters problems of plant maintenance and depreciation and demands for increased service or production. If low water rates have prevented accumulation of financial reserves now needed for improvements, the answer probably is a revenue bond issue.

If such a bond issue election were to be held in your town today, how would the public vote? The fate of America's sorely needed water works improvements rests with the public.

This Series is an attempt to put into words some appreciation of the water works men of the United States.



M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF WALWORTH

New Front-End Loader

422 CATERPILLAR TRACTOR CO., PEORIA, ILL., has announced its entry into the wheeled front-end loader market. Three separate Traxcavator models, ranging from 85 to 145 net hp, are anticipated. They are said to incorporate outstanding safety features and tests have shown them to be high production machines.

Lie Detection

423 Municipal law enforcement agencies will be particularly interested in the "Truth," a complete history of lie detection plus case histories that are important to every community. It can be obtained from ASSOCIATED RESEARCH, INC., 3745 W. BELMONT AVE., CHICAGO 18, ILL.

Time Recording Equipment

424 An increasing number of municipalities are finding that they can eliminate time leaks and increase the efficiency of city departments with these payroll recorders, time recorders, watchman clocks, daters and time stamps. For complete information, write LATHEM TIME RECORDER CO., 92 THIRD ST. N.W., ATLANTA, GA.

High Capacity Mechanical Parking

425 Park-A-Loft mechanical parking garage takes traffic right off the street, eliminates traffic jams at the entrance. It is designed for high-density downtown parking where lot size is restricted, land cost high. For illustrated folder and a color, sound movie of an actual municipal Park-A-Loft operation, write DRESSER-IDECO CO., PARK-A-LOFT DIV., DEPT. P-95, 875 MICHIGAN AVE., COLUMBUS 8, OHIO.

Street Sweeper Rental Plan

426 Cities of every size can now have clean streets at comparatively low cost and without making a capital investment. They can rent their street sweepers, paying for them out of operating funds. A brochure outlining the Wayne Rental Plan for municipalities gives all particulars. For a copy, write WAYNE MFG. CO., 2481 E. LEXINGTON AVE., POMONA, CALIF.

Get Cleaner Sweeper Pickup

427 Completely clean sweeper pickup is achieved with a LoDal hydraulic grapple tilt bucket on the job—and there's no need for shoveling. Capacities are ¾ and 1 cubic yard; pavement drag is 42 inches. The unit is designed for a self-loading truck to which it is mounted. For literature, write LODAL INC., NORWAY, MICH.

Bell-Tite Joint Cast Iron Pipe

428 By writing to JAMES B. CLOW & SONS, INC., 201-299 N. TALMAN AVE., CHICAGO 80, ILL., you can obtain up-to-date literature on cast iron pipe with bottle-tight Bell-Tite joints for working pressures up to 350 psi and available in diameters up to 24".

Nonclogging Well Strainers

429 These well strainers are precision made to permit fast, free flow of clean water from wells and to contribute to the good natural development of water-bearing formation. They are available in a choice of metals and slot sizes. For descriptive literature, write COOK WELL STRAINER CO., 6330 GLENWAY AVE., CINCINNATI 11, OHIO.

(See page 60 for more Bulletins)

Don't let the performance or handling fool you—

Dart is a low-priced police car!

You would never know by the way it performs and handles that the Dodge Dart Pursuit was a low-priced car.

You slip behind the wheel and find the kind of room and comfort you would only expect in more expensive models. The dimensions are generous. The seats designed for proper support for long hours of duty.

You take to the road and learn that this Dart Pursuit is a tremendous performer also. It's fast and responsive. It holds the road beautifully. It tracks with a sure and deft precision under all conditions.

And Dart's new one-piece, all-welded Unibody construction gives it a solidity and a soundness never before found in any other police car *at any price*.

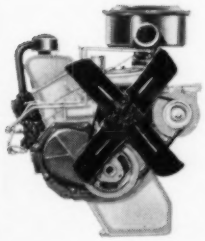
There are many other things to recommend Dart Pursuits for your particular application. A wide choice of engines and transmissions. A selection of two-door, four-door and station wagon models. Why not get *all* the facts today?

* * *

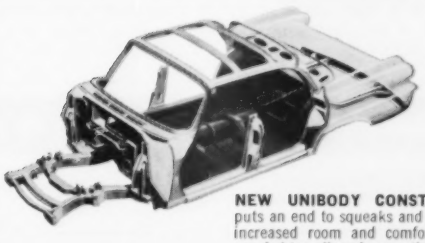
For complete details and specifications, see your nearest Dodge Dealer or write for free Dart Pursuit Brochure, Advertising Department, Box 1259, Dodge Division, Chrysler Corporation, Detroit, Michigan.

DODGE DART

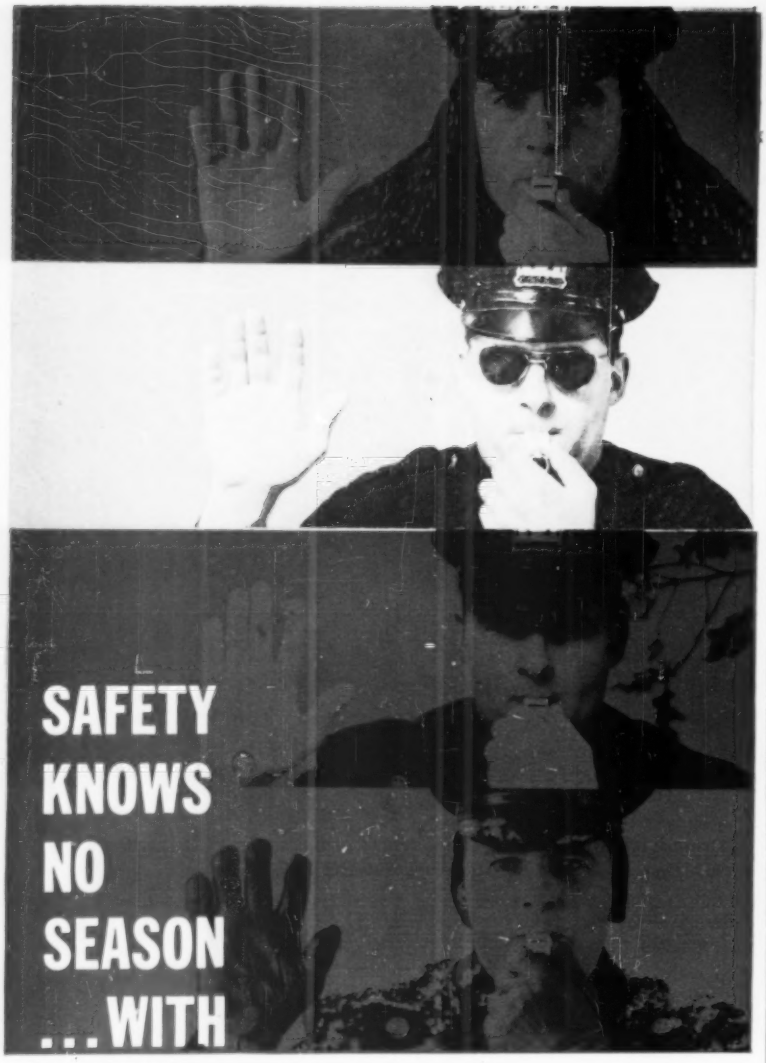
POLICE PURSUITS FOR 1960



NEW ECONOMY SLANT "6" —the engine that acts like an "eight," yet saves like a "six." Unique slant-block design permits engine to breathe better, breathe deeper, burn fuel more evenly. 225 cu. in. displacement, 8.5 to 1 compression ratio, 145 h.p. at 4000 r.p.m., 215 lb.-ft. torque at 2800 r.p.m.



NEW UNIBODY CONSTRUCTION— puts an end to squeaks and rattles, gives increased room and comfort. It's rust-proofed too, dipped seven times in special corrosion-resisting compounds.



PERMA-LINE

This is what makes thermoplastic PERMA-LINE different from old fashioned marking methods: *It's there when you need it most*, whatever the season.

For long lines or crosswalks, in any climate, PERMA-LINE is unsurpassed for high visibility, durability and *guaranteed* safety protection.

PERMA-LINE applies with amazing speed. It dries almost instantly, without disrupting traffic. That's why modern, all-season PERMA-LINE—and only PERMA-LINE—can meet the strict standards of safety demanded by the new Interstate Highway System.

For economy and permanence, Traffic Engineers know: "Whatever the season, if there is a reason for *any* safety marking, there is a better reason for PERMA-LINE."

perma-line

VEON CHEMICAL CORPORATION • 22-09 BRIDGE PLAZA NORTH • LONG ISLAND CITY 1, N.Y.

For your free copy of our brochure showing latest installations and specifications, return this coupon.

■ NAME_____ TITLE_____

■ ADDRESS_____

■ CITY_____ STATE_____

FREE catalogs

Write directly to the address given or use the Post Card on page 55.

Police Motorcycles

430 Large and small communities are finding that the officer mounted on a motorcycle is a more flexible law enforcing agent—in emergencies, criminal apprehension, spot traffic control. A new brochure available from the HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS., will give you a closer look at law enforcement with motorcycle-mounted officers.

Rubber Seated Butterfly Valves

431 Comprehensive 36-page *Catalog* No. 5904 on Darling-Pelton iron body, rubber seated butterfly valves and operators has just been issued by DARLING VALVE & MFG. CO., WILLIAMSPORT, VA. Valves are designed for hydraulic operating pressures up to 125 psi and velocities up to 16 feet per second. They can be operated manually, by motor operators, pneumatic cylinder operators, hydraulic cylinder operators, diaphragm or float operators.

1½ Cubic Yard Loader Has Turning Radius of 8⅔'

432 This machine has a dumping height of 10½', 10,000-pound lifting capacity, 4-wheel drive and doesn't require ballast whether digging or carrying a full bucket. Its reach enables the operator to fill any dump body from one side of the truck. For full facts, write LULL ENGINEERING CO., 3045 HIGHWAY 13, ST. PAUL 11, MINN.

Cast Iron Pressure Pipe

433 Illustrated literature from LONE STAR STEEL CO., W. MOCKINGBIRD LANE AT ROPER, P. O. BOX 12226, DALLAS, TEXAS, describes cast iron pressure pipe that helps save tax dollars, improves high-pressure fire-fighting systems, and delivers a plentiful supply of pure water for other needs at the turn of the tap.

Hardy Trees for Streets and Parks

434 The supplier of 360 varieties of trees, evergreens and deciduous shrubs, has developed five new Honeylocusts of distinctly different characteristics of form, color and growth to help municipalities better meet their landscaping needs. Write THE COLE NURSERY CO., PAINESVILLE, OHIO, for information.

Wheel-Type Ditcher

435 Low in price, big in capacity, this unit works economically on extensions, service lines and other utility jobs, yet is big enough for main line trenching. With it you get 12" to 18 lineal feet of trench per minute, 12" to 24" wide, at depths to 5¾'. Hydraulic power raises and lowers the wheel, tilts the mast. For literature write PARSONS CO., NEWTON, IA.

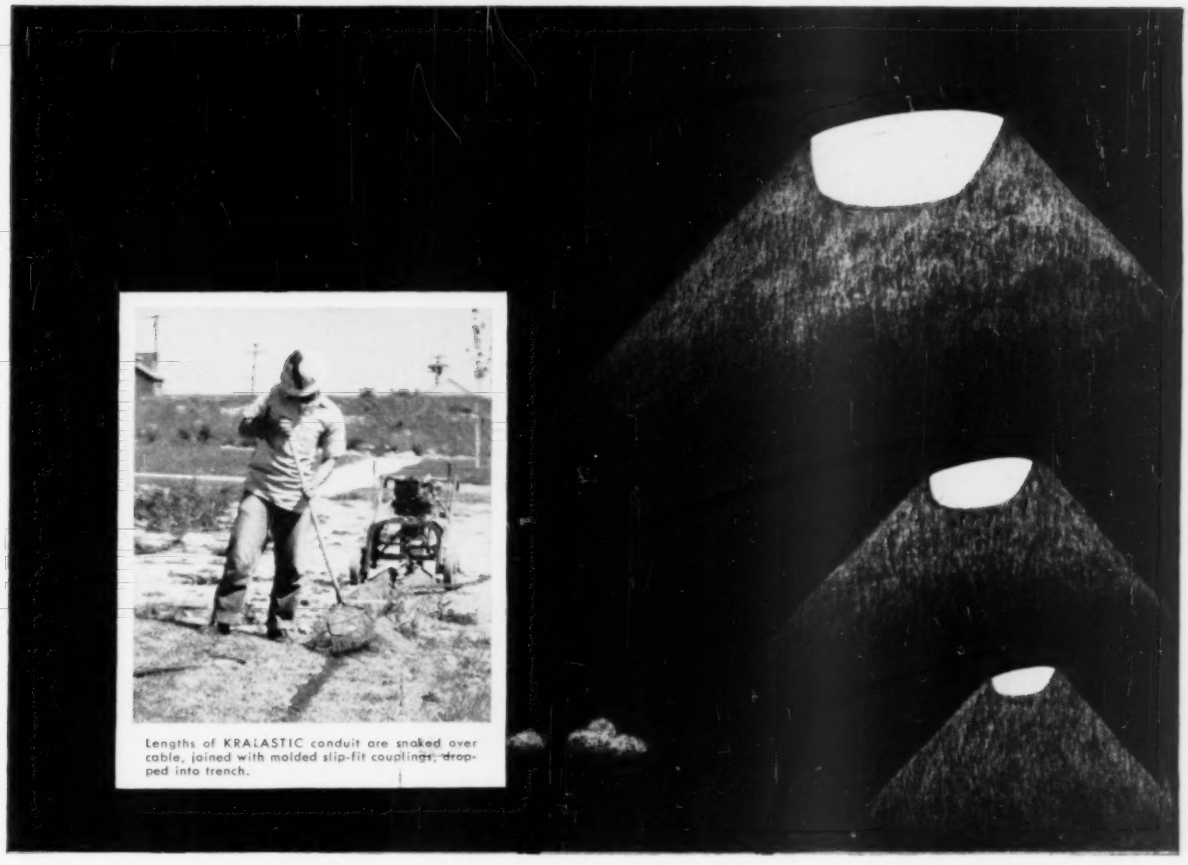
Power Mower Facts

436 If you take your grass cutting costs seriously, you'll want full facts on Locke power mowers. These units cut clean, have a life expectancy of 14 to 19 years, are easy to maneuver and guide and are lower in dollar depreciation. Data sheets are available from LOCKE MOWER DIV., LOCKE STEEL CHAIN CO., 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN.

(See page 62 for more Bulletins)

Naugatuck KRALASTIC

Rubber-Resin



Lengths of KRALASTIC conduit are snaked over cable, joined with molded slip-fit couplings, dropped into trench.

KRALASTIC conduit contributes to 43% savings

New York State Electric and Gas Corporation has learned how to install underground circuits for electric lighting faster, more economically, and with less disruption of landscaped property. A key to the operation is KRALASTIC.®

Used in place of conventional conduit, 20-foot lengths of KRALASTIC semi-rigid conduit are threaded over the cable, cut to length as needed, joined with a molded KRALASTIC slip fitting. All work is done above ground and the protected cable simply dropped into the trench. At driveways and similar obstacles, the conduit is snaked through a hole formed by a ⅝" rod and cone.

N.Y.S.E.& G. found 1½" conduit gave a saving of 15¢ per foot installed. Material costs were reduced further when conduit size was reduced to 1¼" and standard bases were fed by locally made long-radius bends. Additional savings resulted from the fact that conduit breakage during handling was eliminated, and KRALASTIC's light weight made it possible for a standard line truck to carry a full day's supply of conduit, eliminating the need for on-site storage and attendant problems.

Strength, light weight, and resistance to corrosive soils and chemicals are among the reasons why KRALASTIC has been steadily gaining popularity over both metals and other plastic materials not only for electrical conduit, but for municipal and home water service, well piping, salt water disposal, oil, gas, and chemical lines, radiant heating installations, piping applications by the hundreds.

Learn more of the many advantages KRALASTIC offers you. Contact your Naugatuck Representative or the address below today.

US RUBBER

United States Rubber

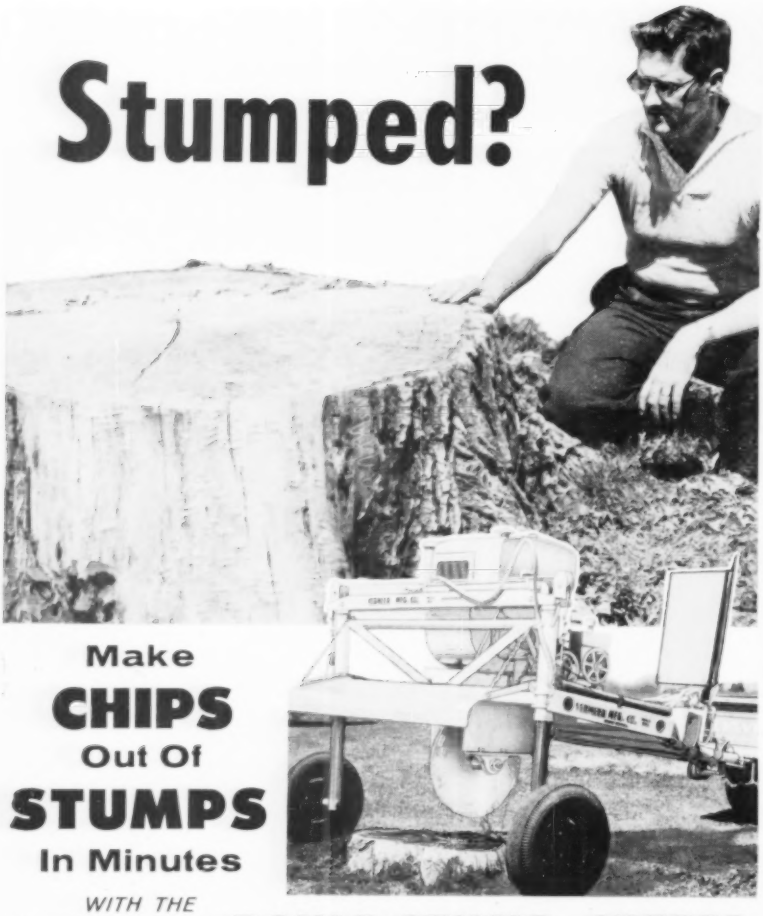
Naugatuck Chemical Division

DEPT. 244K ELM STREET
NAUGATUCK, CONNECTICUT

KRALASTIC RUBBER-RESINS • **MARVINOL** VINYLS • **VIBRIN** POLYESTERS

Akron · Boston · Gastonia · Chicago · Los Angeles · Memphis · New York · Phila. · CANADA: Naugatuck Chemicals · Elmira, Ont. · Cable: Rubexport, N.Y.

Stumped?



Make **CHIPS** Out Of **STUMPS** In Minutes

WITH THE

VERMEER POW-R-STUMP CUTTER

You needn't be stumped any longer when you're faced with the job of removing unsightly tree stumps. One machine—the original Vermeer POW-R-STUMP CUTTER—can solve your problems in less time, with less work and at lower cost than you ever thought possible. Save hundreds of man hours and thousands of dollars annually. A real profit maker for tree service firms. The STUMP CUTTER tears into stumps of any size, and just minutes later nothing remains but a hole 10" deep and a pile of chips. One-man operated, the Vermeer POW-R-STUMP CUTTER allows close quarter cutting to sidewalks, buildings, curbs and driveways without damage. Tested, proved and approved in municipalities, parks, golf courses and cemeteries all over the country. Hundreds in use. Ruggedly built for years of trouble-free service, the POW-R-STUMP CUTTER is a real time saver . . . a real labor saver! There's only one POW-R-STUMP CUTTER . . . ask for a demonstration.

MAIL COUPON FOR COMPLETE ILLUSTRATED LITERATURE AND LOW PRICES NOW

Send complete descriptive literature and prices on your POW-R-STUMP CUTTER to:

NAME ..... PHONE .....

TITLE or DEPT. .....

FIRM .....

ADDRESS .....

CITY ..... STATE .....

VERMEER MANUFACTURING CO.

1452 W. WASHINGTON • PELLA, IOWA

CATALOGS for Improved Municipal Services

Write directly to the address given or use the Post Card on page 55.

Dry Chemical Weigh Feeder Machines

437 These diminishing batch weigh feeder machines are electronically controlled and are designed for accurate, dependable, continuous weigh feeding of dry chemicals in water and sewage treatment plants. Feeding is on pre-selected pounds per hour basis (from 3 to 300 pph). For literature write SYNTRON CO., 430 LEXINGTON AVE., HOMER CITY, PA.

Multicell Incinerator Stokers

438 These units are designed to assure complete flexibility of operation, the utmost in economy and lifetime dependability. You can obtain engineering details and data on "F&E" Multi-Cell Incinerator Stokers by writing to FLYNN & EMRICH CO., BALTIMORE 2, MD.

Air Compressor Offers Lower Cost, Upkeep

439 Descriptive literature points out that the Porta-Air "75" operates a 45-pound rock drill, 80-pound paving breaker or three tampers or two clay spades or 3/16" sand blast nozzle, using only 1½ gallons of gas per hour. It delivers over 75 cfm at 100 psi. Write GENERAL SUPPLY CO., 1920 McGEE TRAFFICWAY, KANSAS CITY, MO.

Static and Vibratory Rollers

440 Literature from ROSCO MFG. CO., ROLCOR DIVISION, 3118 SNELLING AVE., MINNEAPOLIS 6, MINN., gives full information on the Rollpac, a 1-ton static roller ideal for crease rolling and sod rolling, and the Vibrapac roller, which produces compaction to equal or exceed static rollers weighing eight tons.

Transistorized Public Address Radio Amplifier

441 Road Commander Model RC-1225 delivers a crisp, clear audio signal, requires no warm up and is approved for purchase under the OCDM matching funds program. Output is 25 watts on 12.6 volts; input provision for two-way radio allows it to amplify messages outside of vehicle. For full story write LAWRENCE INC., P. O. BOX 5106, SEVEN OAKS STATION, DETROIT 35, MICH.

Encourage Municipal Neatness

442 You can by strategically placing attractive, easy-to-use Torpedo waste receptacles in public buildings, parks, airports, etc. These sturdy disposal units come in five models. For full facts and illustrated literature, write THE F. H. LAWSON CO., CINCINNATI 4, OHIO.

Easy-Handling Crawler Tractor

443 There's much that's new on the Oliver Trans-O-Matic OC-96 loader: 3 types of power turns, power shifting, torque converter, 1-yard loader design. If you're a cost- and comfort-conscious tractor user, you'll want the full story. It's told in a new catalog offered by THE OLIVER CORP., DEPT. 2232, 400 W. MADISON ST., CHICAGO 6, ILL.

(See page 64 for more Bulletins)

Even your dome light draws more current than MOTRAC 2-way radio!

Motorola ends costly power drain problems and idling expense with the first fully transistorized receiver and power supply

What makes Motorola MOTRAC radio the most economical and reliable 2-way radio unit in the annals of mobile communications? Not just one or two new features, but a score of revolutionary design advancements that bring you the very finest set ever engineered.

1. On standby—the MOTRAC receiver draws only a trickle of current—actually 80% less than conventional units—with an occasional increase to maintain crystals at proper temperature for precise on-frequency operation (even your dome light draws more current than MOTRAC radio). Yet, this radio is always poised for instant reception, thanks to its fully transistorized receiver. Result: no life-shortening battery drain . . . no more costly, unnecessary engine idling.

2. MOTRAC radio eliminates the most common maintenance problems: vibrators in the power supply and tubes in the receiver. All are replaced by stabilized long-life transistors.

3. Up to 40°F cooler operation means less aging and strain on components. Reason: no more receiver tube filaments; a more efficient power supply; a battery saver switch to cut off transmitter filaments; and two separate heat sinks—one for power supply, another for transmitter output tubes.

4. The MOTRAC receiver operates directly from the 12-volt battery; its low voltage operation results in less electrical strain on components, assures long life.

5. Traditional Motorola engineering and production excellence are evident throughout MOTRAC radio. Transistors undergo three separate checks, including a week of stabilization at 185°F. Only industrial-type tubes, especially suitable for the rigors of mobile operation, are used in the transmitter.

6. Patient production testing continues under stringent quality control procedures. First, each module is tested. Then each chassis is independently checked. Next, each radio is tested as a composite whole. Finally, the entire radio and associated accessories are checked out as a complete operating system.

7. MOTRAC radio is conservatively designed. The receiver has *even higher* reserve gain than conventional Motorola units to assure *peak performance* for many years. Also, power supply transistors are operated under an exceptionally high safety factor to assure extended service life.

8. Completely independent receiver and transmitter chassis, with no power supply in common, assure reliable reception regardless of transmitter performance.

9. MOTRAC radio offers you 2½ to 3 times higher audio output than conventional sets.

10. MOTRAC radio is designed for split-channel operation. *Both* receiver and transmitter meet critical split-channel stability frequency requirements.

Experienced users have been field testing MOTRAC radios for many months. The results are in—and they're excellent. We'd like to tell you *all* about them. Write, wire or call: Motorola Communications & Electronics, Inc., A Subsidiary of Motorola, Inc., 4501 West Augusta Blvd., Chicago 51, Ill., SP 2-6500. MOTRAC is a Motorola, Inc. trademark.

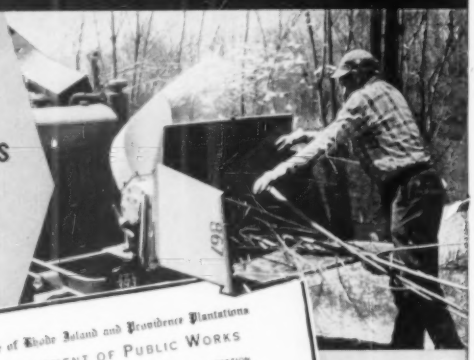
FITCHBURG CHIPPER STEPS UP
Rhode Island Brush Removal

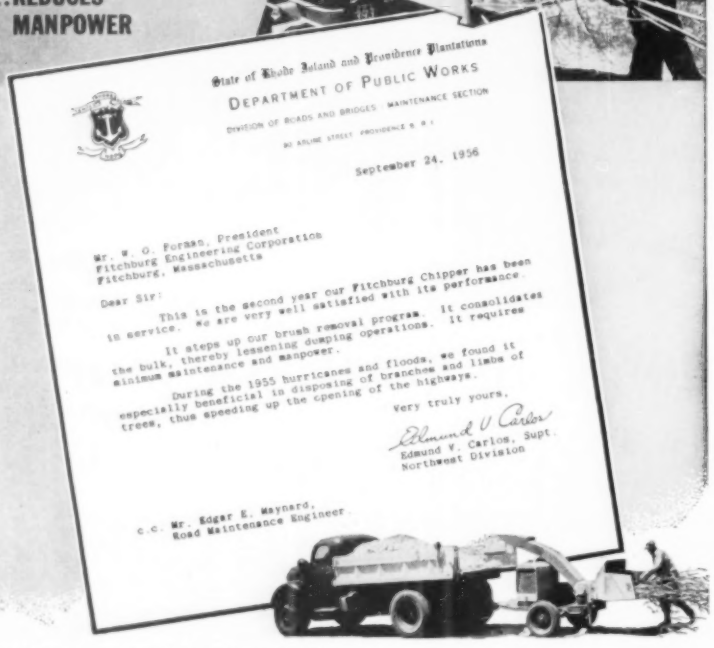
...CONSOLIDATES THE BULK

...LESSENS DUMPING OPERATIONS

...REQUIRES MINIMUM MAINTENANCE

...REDUCES MANPOWER





State of Rhode Island and Providence Plantations
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ROADS AND BRIDGES - MAINTENANCE SECTION
80 ALDINE STREET, PROVIDENCE 9, R. I.

September 24, 1956

Mr. W. O. Forman, President
Fitchburg Engineering Corporation
Fitchburg, Massachusetts

Dear Sir:

This is the second year our Fitchburg Chipper has been in service. We are very well satisfied with its performance.

It steps up our brush removal program. It consolidates the bulk, thereby lessening dumping operations. It requires minimum maintenance and manpower.

During the 1955 hurricanes and floods, we found it especially beneficial in disposing of branches and limbs of trees, thus speeding up the opening of the highways.

Very truly yours,

Edmund V. Carlos, Supt.
Northwest Division

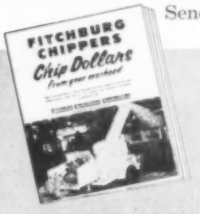
c.c. Mr. Edgar E. Maynard,
Road Maintenance Engineer

Brush disposal cost can be reduced.

Your City will find that the Fitchburg Wood Chipper is money-saving equipment in your Highway or Park Departments. Tree trimmings are quickly reduced into load-saving wood chips. Fewer loads cuts your loading and hauling expenses. Brush removal becomes a faster, simpler, less expensive operation.

Fitchburg Wood Chippers are engineered to stand hard use, to give long service without excessive maintenance costs. There is only one Wood Chipper on the market today with a One Year Guarantee... The Fitchburg Wood Chipper.

Send for a copy of "Chip Dollars From Your Overhead."



NEW FREE BOOK
"Chip Dollars From Your Overhead"
Complete with cutaway color drawings of Chipper in action. Specifications, etc.

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. AC-62

Send my free copy of "Chip Dollars From Your Overhead" to:

Name _____

_____
(Position or Company)

Address _____

City _____ State _____

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

FREE catalogs

Write directly to the address given or use the Post Card on page 55.

Packer-Type Refuse Bodies

444 These refuse collection bodies compact all types of refuse, easily and quickly—and they safely eject loads at the dump site. They can be mounted on low-cost, smaller size truck chassis and are available in sizes of 14 to 38 cubic yards. Full facts can be obtained from the M-B CORP., DEPT. AC, NEW HOLSTEIN, WIS.

Butterfly Valves

445 These wafer and standard (flanged) valves are available for all types of operation—pneumatic, hydraulic, electric or manual—and are engineered for trouble-free service. Natural rubber seats assure bubble-tight shutoff, provide smooth vane seating. *Form* 24 gives comprehensive information. Write FABRIVALVE COMPANY OF AMERICA, 2100 N. ALBINA AVE., P. O. BOX 4352, PORTLAND 8, ORE.

Destroys Odors

446 Ozone generating equipment for the destruction of obnoxious odors in sewage handling, water purification, industrial wastes and for odor control in public buildings receives thorough explanation and presentation in literature offered by AMERICAN ELECTRO CHEMICAL PROCESS CORP., 1721 N.E. MIAMI CT., MIAMI 32, FLA.

Mirror for Public Buildings

447 This mirror is ideally suited for use in beach houses, park buildings, jails, city halls and other public buildings. It gives a complete view of head and shoulders, is made of highly polished chromium plated sheet securely set in ductile iron frame and has a reflectivity that approximates that of glass. For literature on Cell Mirror No. 408, write FOLGER ADAM CO., 700 S. RAILROAD ST., JOLIET, ILL.

Luminaire for Highway Markers

448 *Bulletin* 300-21 gives full information on Fluoresign, an outdoor fluorescent luminaire that contributes to safety and driving convenience by providing high-level, glare-free controlled light for highway signs. It is modular in construction and available for all fluorescent lamp types. Write OUTDOOR LIGHTING, REVERE ELECTRIC MFG. CO., 7420 LEHIGH AVE., CHICAGO 48, ILL.

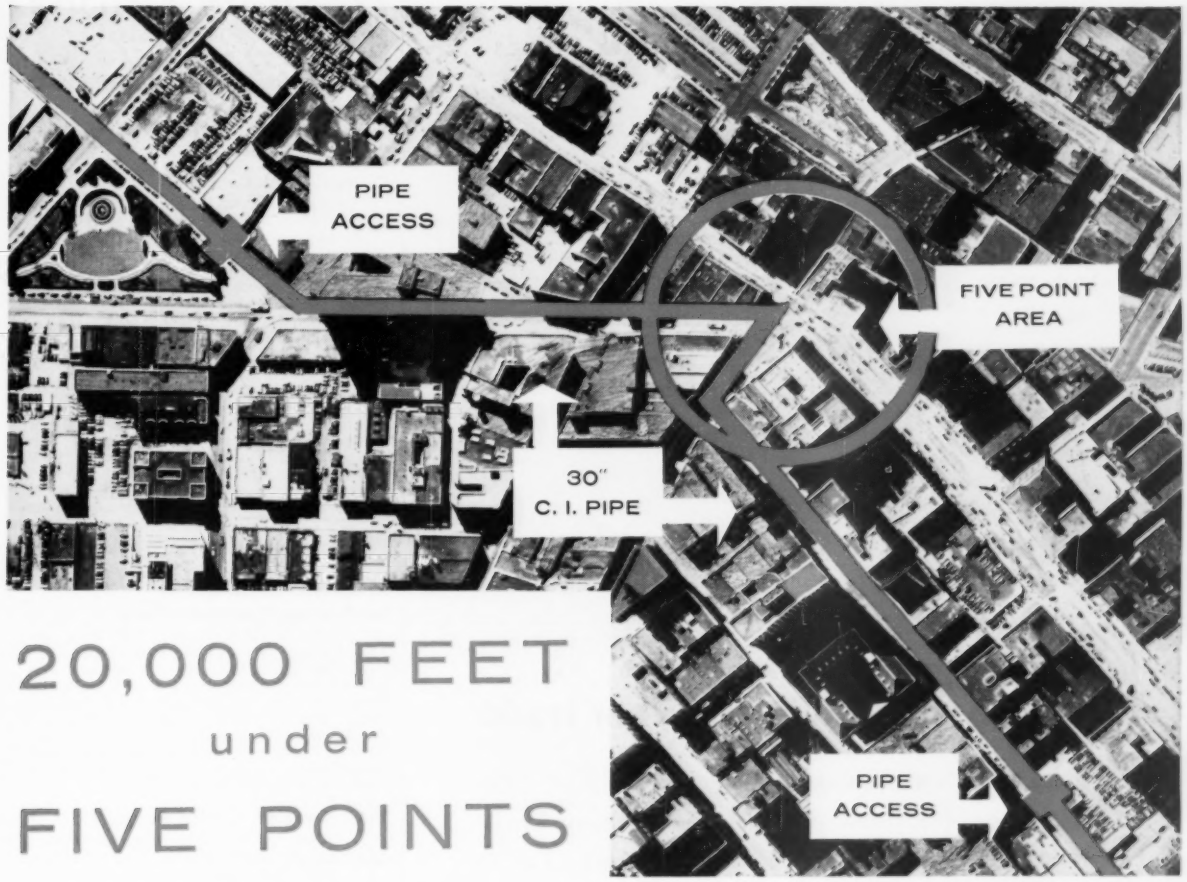
Renews Concrete Structures

449 Gunite easily, economically and permanently repairs concrete tanks, reservoirs, sea walls, sewers, bridges, filter plants and other concrete structures. How it does this is thoroughly explained in literature available from INDIANA GUNITE & CONSTRUCTION CO., INC., 226 NORTH ALABAMA ST., INDIANAPOLIS, IND.

Metal Drainage Structures

450 A 20-page catalog of authoritative data gives complete facts on Armco Multi-Plate, designed to provide an economical answer to large drainage structures, underpasses, conduits and similar needs. For a copy, write ARMCO DRAINAGE & METAL PRODUCTS, INC., DEPT. A, 4320 CURTIS ST., MIDDLETOWN, OHIO.

(See page 66 for more Bulletins)



20,000 FEET under FIVE POINTS

You're flying over "Five Points," Atlanta's booming downtown area. Through the heart of this busy section Centriline crews have recently reconditioned almost 20,000 feet of water mains *—without slowing business or traffic.* No detours, no disgruntled merchants, and only two small access excavations in over 2,000 feet of dense traffic area, because the job was done with mains in place.

Centrilining—the process of lining pipes in place by the centrifugal application and automatic troweling of cement-mortar—offers other features, too. Gone forever are corrosion and tuberculation. Up goes pressure, at lowered pumping and maintenance costs. Pipe life is prolonged indefinitely. And all at a mere fraction of the cost and municipal inconvenience of laying new mains.

To date, Centriline has completed six contracts for the city of Atlanta alone; 150,000 feet of pipe have been given a new lease on life. Send today for our illustrated brochure, which shows in detail how the Centriline process can help you save lines from 4 to 144 inches, or contact any of our domestic offices.

CENTRILINE CORPORATION

A Subsidiary of Raymond International Inc.

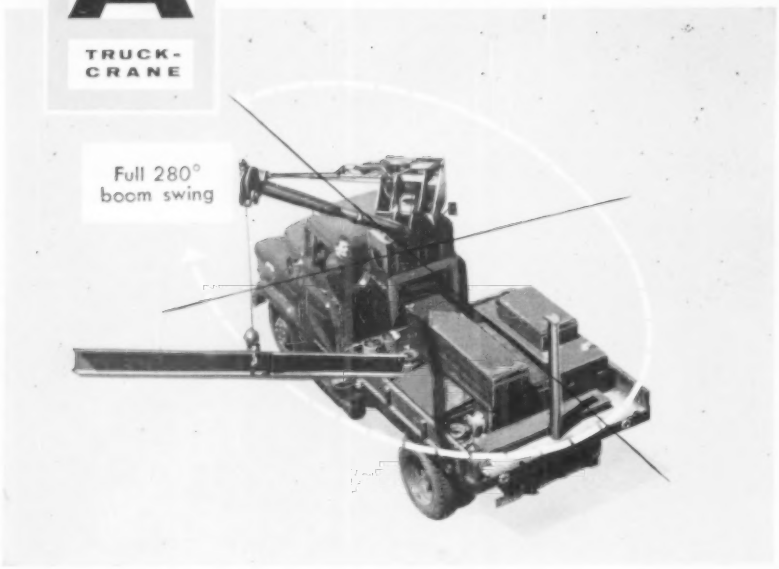
140 CEDAR STREET • NEW YORK 6, N. Y.

Branch offices in principal cities of the United States, Canada, and Latin America.

ANTHONY

TRUCK-CRANE

the quality leader in Truck-Cranes



The Crane that's built into your truck!

Take your crane with you *right along with the load!* Why tie up another specialized rig when the Anthony Truck-Crane does it better . . . travels with your truck. Lift 2½ times as much as most end loaders! Make your truck self-loading – and self-unloading. Do many jobs formerly done by larger, more expensive cranes – and do them better. Tell your Anthony distributor you're ready for that demonstration . . . now! Anthony Company, Streator, Illinois.

HYDRAULICALLY PROJECTED BOOM FOR ACCURATE SPOTLOADING

Unmatched compactness—requires only 18" mounting space • 100% hydraulic operation—for smooth, effortless power • Full 280° boom swing for flexibility • Choice of booms.

ANTHONY

DUMP BODIES AND HOISTS

DUMP TRAILERS

LIFT GATE

TRUCK-CRANE

MONEY SAVING *catalogs*

Write directly to the address given or use the Post Card on page 55.

Collapsible Voting Booth

451 When set up, Uni-Pack provides a 6'1" x 28" x 28" single stall booth, yet collapses to suitcase size for convenient portability and storage. It is ideal for augmenting voting facilities and is just one item in a complete line of voting equipment cataloged in literature offered by DOUGLAS MFG. CORP., DEPT. R, CRETE, NEB.

Power Stump Remover

452 The Pow-R-Stump Cutter specializes in removing unsightly tree stumps, quickly, with less work and at lower cost. It tears into stumps of any size. In minutes only a 10" deep hole and chips remain. It is one-man operated and allows close quarter cutting to sidewalks, buildings and driveways without damage. For literature, write VERMEER MFG. CO., 1455 W. WASHINGTON, PELLA, IA.

Aluminum Glass Covers for Sewage Treatment Plants

453 These glass covers will help increase the efficiency of sludge drying beds, eliminate nuisances and add to the attractiveness of the building. They are also recommended for settling tanks and trickling filters. A new set of *Engineers' Service Sheets* (AC-160) contains details, recommendations, and specifications for every job request. Write LORD & BURNHAM, IRVINGTON, N. Y.

Short Coupled Service Pumps

454 These units offer the advantages of top performance, high efficiency and less maintenance, lower installation and operation costs, low submergence requirements, simple alignment, no priming and less floor space. *Bulletins* No. 300 and 350, respectively, describe turbine-type and propeller and mixed-flow pumps. Write LAYNE & BOWLER, INC., MEMPHIS 8, TENN.

High-Capacity Steam Cleaner

455 Model 330 is a fully automatic, gas-fired stationary unit that delivers 330 gph of hot solution at 60-90 psi. It is designed for truck and heavy equipment cleaning where a large flow of solution is required on an almost continuous stop-and-go basis. Literature and specifications are available from MALSBARY MFG. CO., 345 - 92nd AVE., OAKLAND 3, CALIF.

Practically Engineered Tractors

456 Utility tractors from 31 to 63 engine horsepower with companion equipment to match your needs are the subject of current literature being offered by ALLIS-CHALMERS MFG. CO., UTILITY TRACTORS & EQUIPMENT, MILWAUKEE 1, WIS.

Transistorized Two-Way Radio

457 *Bulletin* ECR 666 describes how small size makes possible a wide variety of positions in which two-way radio equipment may be mounted in cars and trucks. Charts show the low power required from the car's battery by the unit which uses only 0.04 amperes on "standby" (with the engine off)—less drain than the power required by an automobile clock, which runs continuously. Write GENERAL ELECTRIC COMMUNICATION PRODUCTS DEPT., SECTION 120, LYNCHBURG, VA.

(See page 69 for more Bulletins)

Here's factual proof of 1960 Plymouth Police Car popularity in state and city police forces throughout the country.

Here is a partial list showing major Police sales of '60 Plymouths reported to January 1:

Los Angeles	284	State of Minnesota	62
State of Texas	209	State of Indiana	50
Houston	103	Fresno	34
Suffolk County, N.Y.	90	State of Washington	32
State of New York	82	Charlotte	26
Detroit	74	State of Wisconsin	26
State of West Va.	72	Ohio Turnpike	20

Besides Plymouth's low price, here are a few reasons why we believe Solid '60 Plymouth Police Cars are so well liked:

They're built a new way with sturdy, long-lasting bodies.

Every Plymouth Police Car is built the solid Dura-Quiet Unibody way. Approximately 5400 precise welds join tough steel of body and frame into one sturdy, solid welded unit. This should let you keep Police Cars a long time and let you enjoy high resale value when you trade or sell.

They're available with a wide choice of engines and transmissions.

There are a total of eight Plymouth engine options including these three basic engines: Plymouth's new *inclined* 30-D Economy Six—145 horsepower at 4000 RPM; Plymouth's new Fury V-800—230 horsepower at 4400 RPM; and the Golden Commando 395 V-8—305 horsepower at 4800 RPM. There are also three optional water-cooled push-button automatic transmissions or two new 3-speed manual transmissions to select from. Some are extra-cost options.

They've all got tough, new Total-Contact Brakes with three-platform staging.

These big, heavy-duty 12″ brakes have 251-square-inch lining area. Linings are bonded, not riveted to shoes. Specially built platforms assure extremely accurate alignment and help eliminate brake noise. This means long life for your brakes.

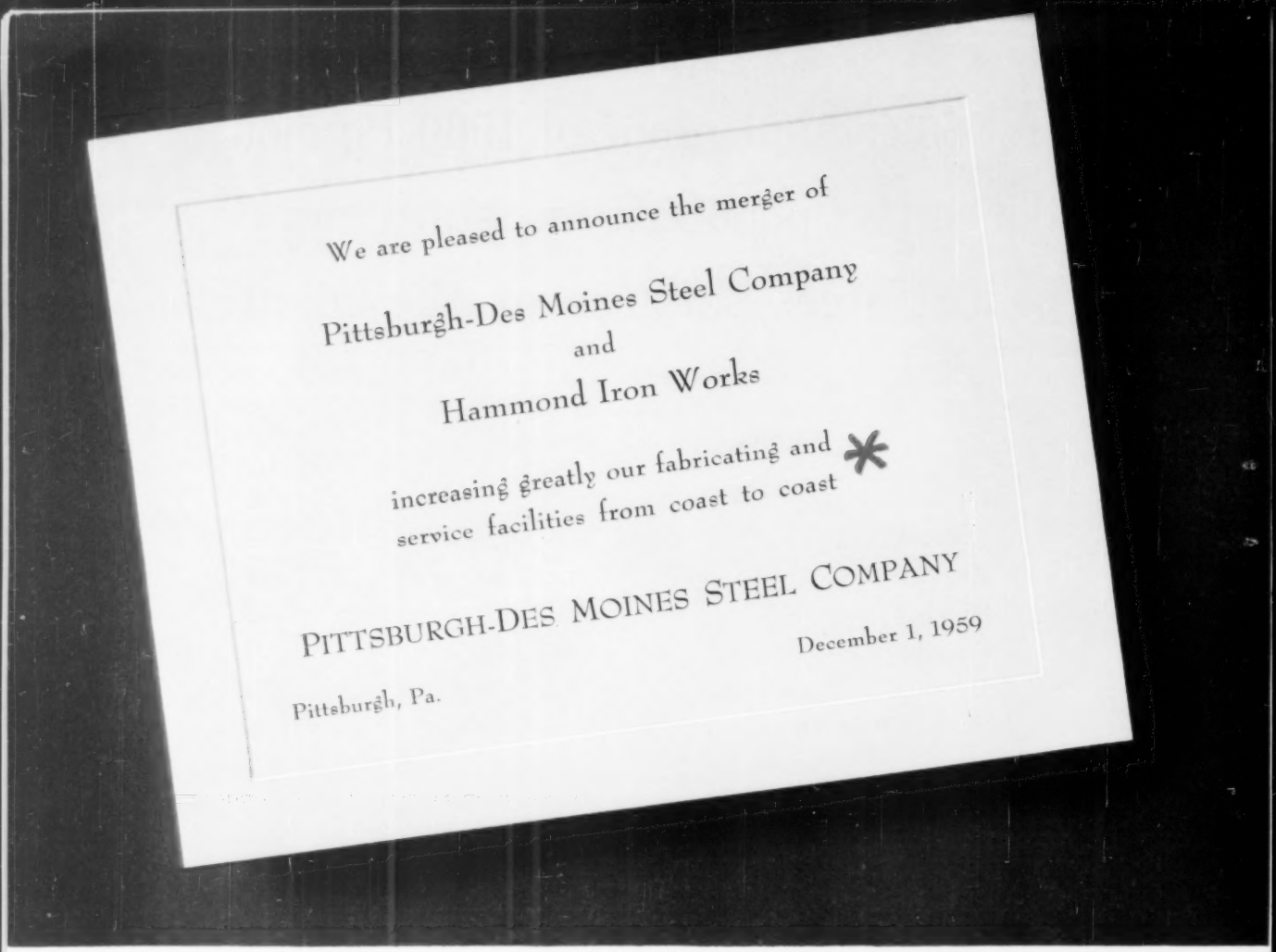
There are three new Plymouth Police Cars, each built for a special job.

There's the Patroller 6 with the new 30-D Economy Six engine for city work. There's the Patroller Special 8 powered by the new Fury V-800 for both city and suburban use. There's Plymouth's Pursuit Special 8 with a Golden Commando 395 engine for highway and turnpike patrol. And, there's a choice of Police Emergency Wagons, too.

Interested? Visit your nearest Plymouth dealer today and see the reasons for Plymouth's popularity with Police Departments throughout the country. Ask him for a free copy of the new Plymouth Police Car Catalog. There's no obligation.

A Chrysler-engineered product, built a new solid way to give you solid satisfaction.

SOLID PLYMOUTH 1960


We are pleased to announce the merger of
Pittsburgh-Des Moines Steel Company
and
Hammond Iron Works
increasing greatly our fabricating and service facilities from coast to coast
PITTSBURGH-DES MOINES STEEL COMPANY
December 1, 1959
Pittsburgh, Pa.

*NOW MORE THAN EVER BEFORE!

PDM STEEL COMPANY

The greatly-enlarged Pittsburgh-Des Moines organization now offers even finer service to the waterworks and municipal fields . . . in increased personal representation, *twelve* fabricating plants from coast to coast . . . expanded design and engineering facilities . . . and an even broader range of products and capacities for modern water storage and treatment. Back of every PDM sales engineer in the field is a greater organization to serve you—in promptness, craftsmanship, responsibility and satisfaction. Let us quote on your requirements!

Pittsburgh-Des Moines Steel Company

Plants at PITTSBURGH, WARREN, BRISTOL, PA. • BALTIMORE • BIRMINGHAM • DES MOINES
PROVO, UTAH • CASPER, WYO. • SANTA CLARA, FRESNO, STOCKTON, CALIF.

Sales Offices:

PITTSBURGH (25)	3412 Neville Island	DES MOINES (8)	913 Tuttle Street
BALTIMORE (26)	Curtis Bay Station	DENVER (2)	323 Railway Exchange Bldg.
NEW YORK (17)	Suite 2715, 200 E. 42d St.	DALLAS (1)	Suite 1717, Southland Center
NEWARK (2)	744 Broad St.	SEATTLE (1)	Suite 320, 500 Wall St.
CHICAGO (3)	616 First National Bank Bldg.	SANTA CLARA, CALIF.	619 Alviso Road
ATLANTA (5)	361 E. Paces Ferry Rd., N.E.	EL MONTE, CALIF.	P.O. Box 2012
JACKSONVILLE (7)	4066 Ferrara Road	PROVO, UTAH	P. O. Box 310

FREE catalogs

Write directly to the address given or use the Post Card on page 55.

Lubricated Plug Valves

458 *Bulletin* AE-1059 gives full details on these lubricated plug valves, pointing out that they can be installed in any position, operate easily in a quarter-turn, and can be used in a wide range of service operations, including sewage and water works. For a copy, write W-K-M DIVISION OF ACF INDUSTRIES, INC., P. O. BOX 2117, HOUSTON, TEXAS.

Protect Safety and Maintenance Crews

459 Current literature from INDUSTRIAL PRODUCTS CO., 2968 N. FOURTH ST., PHILADELPHIA 33, PA., describes and illustrates a full line of fluorescent high visibility safety equipment that includes warning flags, safety vests, plastic barrier ropes, hard hat covers and safety cones—geared to increase the safety of working crews.

Tests Concrete Pavement

460 Those responsible for taking test samples of concrete pavement will find the Mark V pavement coring device easily extracts smooth, uniform cores from 2" to 10" in diameter and up to 18" in length. Compact and self-powered, it mounts on any lightweight truck or trailer. For complete specifications, write MOBILE DRILLING, INC., DEPT. 12, 960 N. PENNSYLVANIA ST., INDIANAPOLIS, IND.

New High-Speed Squirrel Cage Induction Motors

461 These motors are now being offered in 100-5000 horsepower, 514-3600 rpm, frames 584-11320 by the IDEAL ELECTRIC AND MANUFACTURING CO., MANSFIELD 15, OHIO. Double end ventilation system provides maximum cooling, permitting full utilization of motor capacity. Motors are available with silicone rubber as well as class A, B and H insulation.

Improved Fire Hydrants

462 These fire hydrants have been improved to help you provide your community with the utmost in efficient, dependable, long life fire protection service. They now feature an optional break flange to give double protection against impact damage and a large-diameter barrel for increased flow. For full story, write EDDY VALVE CO., WATERFORD, N. Y.

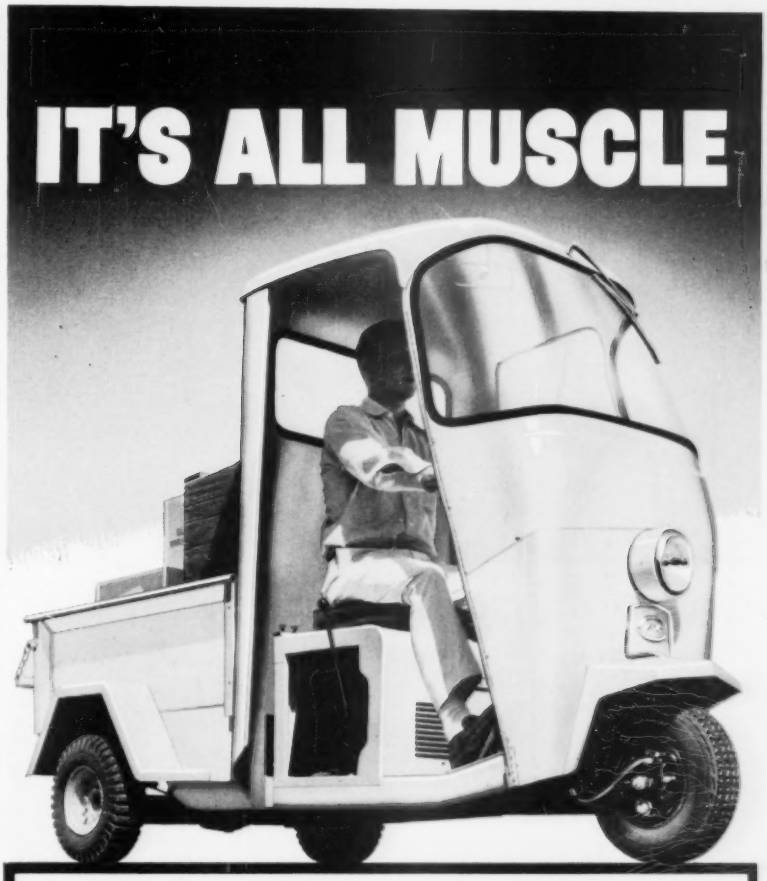
Speed Water-Meter Reading

463 A colorful brochure, available from BADGER METER MFG. CO., 4545 W. BROWN DEER RD., MILWAUKEE 18, WIS., will tell you all about the Read-o-Matic, a practical outdoor register devised to eliminate wasted calls, difficult access problems and to speed water-meter reading.

Asbestos-Cement Pressure Pipe

464 This pipe is made of tough, high-tensile-strength asbestos fibres and portland cement. It's immune to electrolysis, won't corrode, is easy to install in practically all weather and soil conditions and its joints remain permanently water- and root-tight. For literature, write KEASBEY & MATTISON CO., AMBLER, PA.

(See page 70 for more Bulletins)



New 1960
CUSHMAN
780 TRUCKSTER
with built-in economy

Cushman 780 Trucksters carry the biggest set of rugged muscles ever built into a light hauling vehicle. They offer the greatest economy . . . small initial investment, minimum maintenance expense, operating cost of less than a penny per mile, and savings on taxes and insurance.

Capable of carrying an 800 pound payload, the 780 Truckster is a versatile workhorse. It goes everywhere, parks anywhere, maneuvers easily in crowded quarters.

- New formed channel, automotive style chassis
- Bigger, stronger pick-up box
- Dependable Cushman Husky 4-cycle engine
- Constant mesh transmission
- Hydraulic, internal expanding brakes
- Optional fiber glass and steel cab with wrap-around windshield
- Choice of body styles to fit the job

Ask your dealer for a demonstration of how the Truckster can cut costs—or write for information

CM UTILITY VEHICLES **CUSHMAN MOTORS** 944 No. 21st, Lincoln, Nebraska

A subsidiary of Outboard Marine Corporation, maker of Johnson and Evinrude outboard motors

Please send information on 780 Truckster.

NAME _____
(ATTACH TO YOUR LETTERHEAD)

SIMPLICITY OF OPERATION
key to low cost, popular (MB) packer bodies

Compacts all types of refuse—easier, faster

Packer plate pushes out load—safely, quickly

M-B Packer Body simplicity of design and operation can save you hundreds of dollars in lower initial investment, in faster collection, and in lower operational cost. The square, van-type body design eliminates dead weight caused by complicated hydraulic systems and heavy tailgates — allows mounting on low-cost, smaller size truck chassis. The new M-B vertical bulldozer-type plate completes the packing cycle in seconds — pushes out the load just as fast, without raising body. And, you pile up savings from lower operating and maintenance cost because of the smaller truck and simple, trouble-free packing mechanism. There's a size for every need from 14 to 38 cu. yd. See your distributor or write the M-B Corp., New Holstein, Wisc. Dept. AC.

QUALITY MUNICIPAL AND INDUSTRIAL EQUIPMENT SINCE 1907

M-B CORPORATION
NEW HOLSTEIN
WIS.

LINE MARKERS • PACKER BODIES • SWEEPERS

FREE catalogs

Write directly to the address given or use the Post Card on page 55.

New Method of Stump Removal

465 A radically new type of stump removal equipment, the Stump Gobbler utilizes power take-off and six-way hydraulic control to remove stumps quickly, easily and profitably. It will go down to unlimited depths, a desirable feature when the removal area is to be graded and resurfaced. For full facts, write MYERS-SHERMAN CO., STREATOR, ILL.

Accurate Concrete Testers

466 Low-cost plant and job site testers for concrete cylinders, cubes, blocks, beams, and pipe are described in a full-line catalog, available from FORNEY'S, INC., TESTER DIVISION, P. O. BOX 310, NEW CASTLE, PA.

Fire Service Ladders

467 The new 24-page bulletin available from DUO-SAFETY LADDER CORP., 513 W. NINTH AVE., OSHKOSH, WIS., describes aluminum and wood ladders for fire fighting use. Of particular interest to fire fighting and emergency crews will be the section on "Ladder Facts" and complete specifications on the new Series 1200 ladders for service trucks.

Improved 125-CFM Rotary Compressor

468 Particularly important to those who own and rent compressors are three safety features added to the gasoline-driven, 2-stage portable Le Roi 125RG2, for they make this model as easy to operate as a piston-type compressor. For details on these and five other refinements, write for literature to SALES PROMOTION DEPT., LE ROI DIV., WESTINGHOUSE AIR BRAKE CO., MILWAUKEE 1, WIS.

Traffic Signs That Stay Legible

469 These traffic control signs are embossed. They have extra strength and rigidity and their raised letters make them easier to read. They are illustrated and described in a complete line catalog of rust-proof steel and aluminum street name assemblies and traffic control signs. Write THE MIROFLEX CO., INC., 1824 E. SECOND, WICHITA 14, KANS.

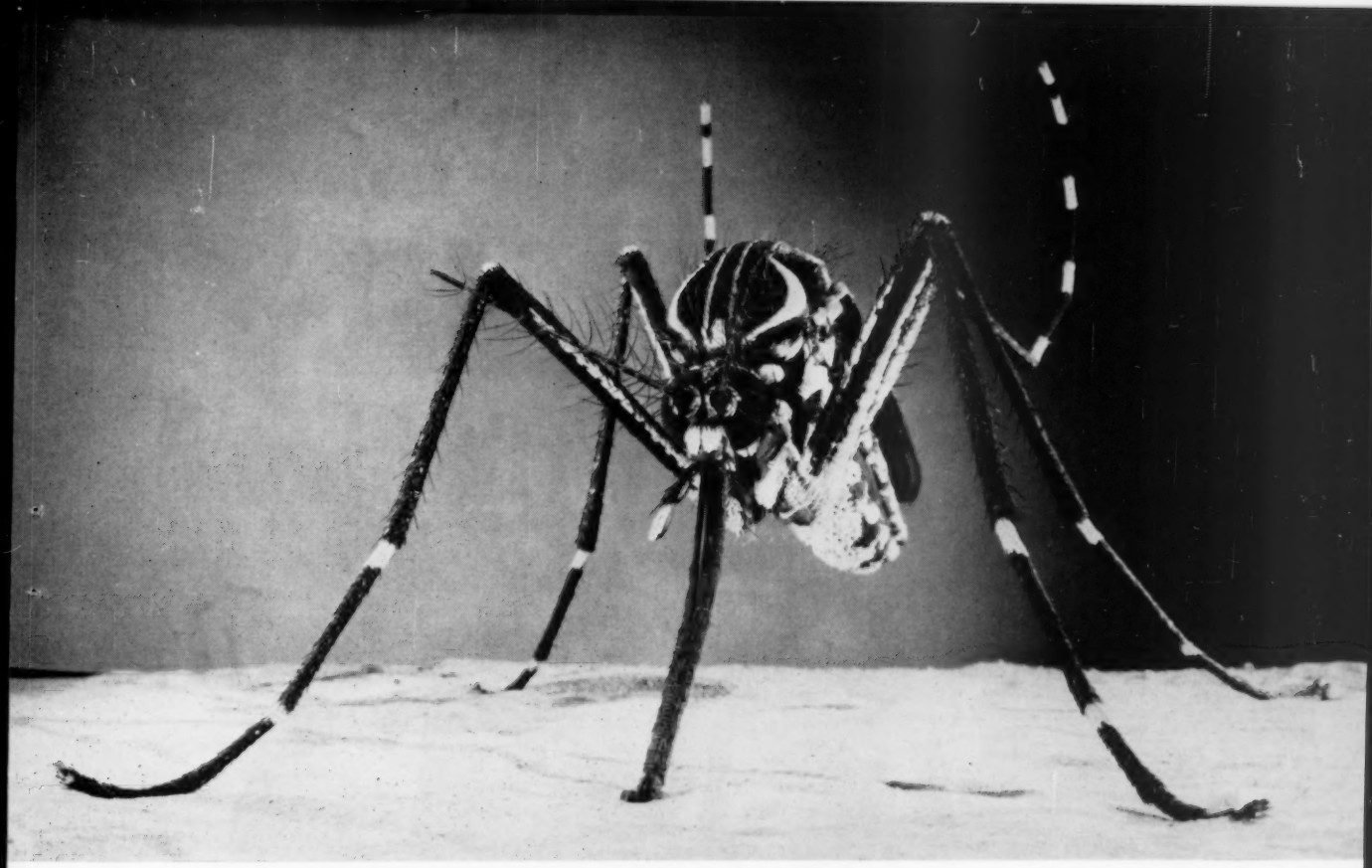
Selecting the Right Surfacing Material

470 There are a variety of answers to the paving problems of any city. And there are heavy-duty, intermediate and low-cost types of construction. Information on all these types can be found in two brochures offered free by TEXACO INC., ASPHALT SALES DIV., 135 E. 42ND ST.,, NEW YORK 17, N. Y. They will assist you in choosing the type best suited to your city's paving requirements.

Heavy-Duty Non-Clog Pumps

471 These units handle heavy liquids and solids in suspension. They are available in capacities to 9000 gpm, for heads to 150 feet, and handle solids to 6 inches in size. For full facts, request *Non-Clog Bulletin* 121A, *Sump Bulletin* 104, and *Mono-Vane Bulletin* 121MV. Write AURORA PUMP DIVISION, THE NEW YORK AIR BRAKE CO., 1108 DEARBORN ST., AURORA, ILL.

(See page 74 for more Bulletins)



NOW HE'S REALLY HAD IT!

Economical malathion-Lethane combination gives 30% better kills than presently-used insecticides ...controls resistant strains, too

60% kill of mosquitoes in area control work is no longer good enough. 90% *plus* is what you can expect with a malathion-Lethane combination. The cost? Comparable to presently-used but *far less effective insecticides.*

Controls larvae and adults

Malathion plus Lethane gives spectacular results on both life stages. While recommended rates are generally higher, 1/10 lb. per acre has given excellent control of adult mosquitoes in Florida. Hundreds of thousands of acres are being treated yearly for larvae in California at ½ lb. per acre with similar results.

Controls resistant strains

While malathion is replacing less effective insecticides in all areas, it is particularly useful in the many areas where mosquitoes have become resistant to chlorinated insecticides. Here, authorities have switched almost exclusively to malathion because it is *the* phosphate with low toxicity to warm-blooded animals. The U.S. Public Health Service reports that malathion is actually less toxic than DDT. Vector control authorities, park and city managements are specifying malathion for its combination of mosquito-killing power and safety in use. It can be applied by air, thermal fogging and mist spraying with equally good results.

Write to American Cyanamid Company, maker of technical malathion, for detailed information on area mosquito control.

Formulations widely available

Malathion formulations are supplied to area control authorities by many well-known manufacturers under their own brand names. American Cyanamid Company, Agricultural Division, New York 20, New York.

CYANAMID

MALATHION

INSECTICIDES

INTRODUCING

SHORT NEW CHEVROLET TILT CAB TRUCKS

72" BUMPER TO BACK OF CAB

They're built like "tilts" should be built—that's the story on this new line of trucks from Chevrolet. All of the special advantages of tilt cab design —compactness, extra payload capacity, easy maintenance, maneuverability —are better than ever before. And Chevy brings you some extra-special benefits, too!

MOST COMPACT IN ITS CLASS for higher profit payloads. Six-foot-bumper-to-back-of-cab dimension gives you more cargo space than ever before (almost 60 cubic feet more than other tilt cab trucks!). You can carry bulkier payloads in a bigger body; and you can carry *heavier* payloads, too, because the extra space means more of the load weight can be carried by the front suspension. This *shorter* design means longer profits!

BEST MANEUVERABILITY. With comparable body sizes, new Chevrolet tilt cabs are as much as 2½ feet shorter overall than conventional models and save up to 48 inches in wheelbase. This *minimized* length and wheelbase pay off in *maneuverability* – easy handling in tight places that will save you time and work every day.

ROOMIEST CAB in its class! New Chevy tilt cabs are big and comfortable inside. A full 6½ feet wide, with plenty of head room and leg room for rangy drivers. And there's the safety of "picture window" visibility through a sweeping glass area.

REVOLUTIONARY TORSION-SPRING RIDE standard in all models! Independently suspended front wheels step nimbly over bumps . . . and friction-free torsion bars soak up jolts of all sizes. New variable-rate rear springs complement the new front suspension perfectly. The result is an amazingly smooth ride that assures higher safe cruising speeds, more work done every day . . . plus longer truck life with lower maintenance costs.

And in every new Chevy tilt cab model, new tougher built rear axles and brawny new box-section side-rail frames team up with the best kind of big truck power.

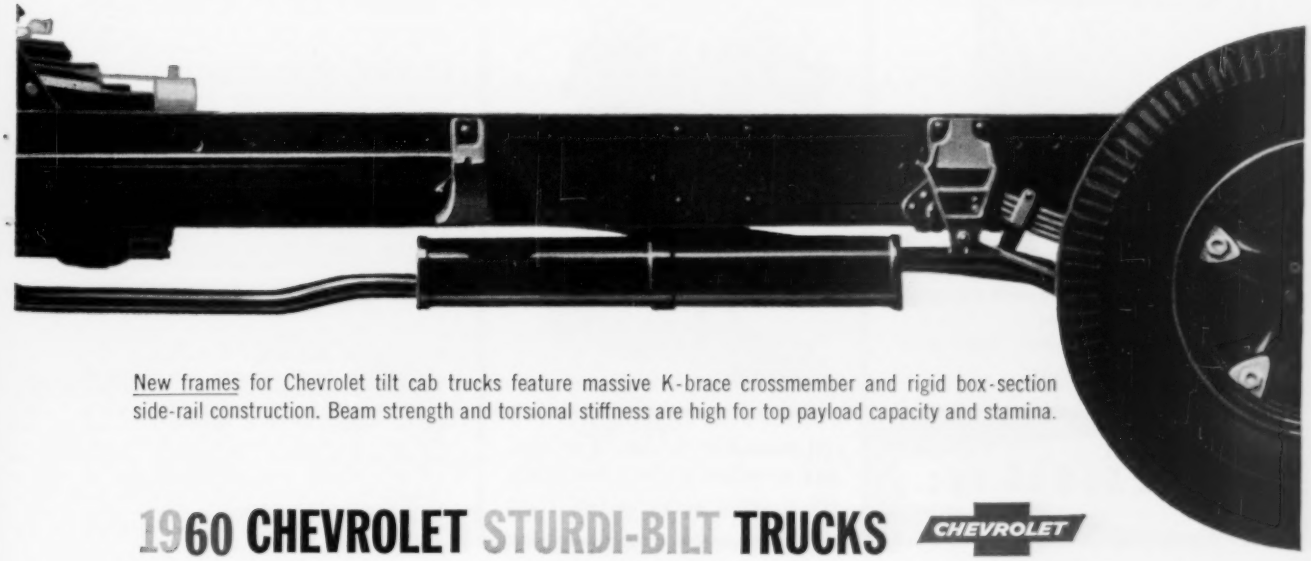
New ease of maintenance slashes upkeep costs. Maintenance can be performed in as little as half the time required for conventional trucks!

Stationary control island is solidly mounted on truck frame. Short linkage is dependable and easy to adjust.

Torsion-spring tilting hinge takes the work out of tilting. A tough torsion bar counterbalances the cab's weight and makes cab tilting a breeze.

Triple-safe locking system provides protection against accidental tilting. Keeps cab securely anchored down when you're under way.

20 NEW MODELS IN 5 SERIES. Five rugged medium- and heavy-duty series offer G.V.W.'s up to 25,000 lbs. Money-saving power is provided by Chevy's famous truck-built engines – economy-minded 6's for all models up to 22,000 lbs. G.V.W. and tough V8's for bigger models. Chevy makes tilt cab design *work* like never before; you can see for yourself by visiting your Chevrolet dealer right now! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



New frames for Chevrolet tilt cab trucks feature massive K-brace crossmember and rigid box-section side-rail construction. Beam strength and torsional stiffness are high for top payload capacity and stamina.

1960 CHEVROLET STURDI-BILT TRUCKS CHEVROLET

FREE catalogs

Write directly to the address given or use the Post Card on page 55.

Police Car Catalog

472 Three new police cars—the Patroller 6 for city work, the Patroller Special 8 for city and suburban use, the Pursuit Special 8 for highway and turnpike patrol—and police emergency wagons are detailed in the new Plymouth Police Car Catalog, available from PLYMOUTH MOTORS CORP., 6334 LYNCH RD., DETROIT, MICH.

For Better Mosquito Control

473 This insecticide not only controls larvae and adults, but also controls resistant strains. It can be applied by air, thermal fogging and mist spraying with equally good results and safe to use. It is reported to give 30% better kills than presently-used insecticides. For details on malathion-Lethane, write AMERICAN CYANAMID CO., AGRICULTURAL DIV., NEW YORK 20, N. Y.

Safe, Versatile Mowers

474 These rugged Hammer-Knife mowers tackle all mowing jobs with ease and efficiency, shredding and deflecting grass clippings to the ground directly behind the mower. Models range from 18" hand to 19' gangs. Full facts are available from MOTT CORP., 4021 EBERLY AVE., BROOKFIELD, ILL.

Steel Street Lighting Standards

475 *Catalog* A60 illustrates and describes a complete line of round and octagonal steel lighting standards, brackets, mast arms and hardware to suit the needs of modern and highway lighting. It can be obtained from DANIEL STANDARDS, INC., SUITE 300, 1719 W. END AVE., NASHVILLE, TENN.

New Desk-Top Photocopier

476 A compact, lightweight "Thermo-Fax" copying machine, styled for desk-top use, operates on a completely dry, all-electric copying principle and measures 14½" x 12½" x 4⅛". The Courier accommodates a new bond-weight white copy paper, although any one of 7 colored or special copy papers can also be used. For details, write DEPT. S9-515, 3M COMPANY, 900 BUSH AVE., ST. PAUL 6, MINN.

Concrete Steel-Cylinder Force Mains

477 Laying and service conditions difficult? High initial and high ultimate capacity mandatory? Long service life with minimum maintenance sought Concrete steel-cylinder pipe is applicable. For literature giving details, write PRICE BROTHERS, E. MONUMENT AVE., DAYTON, OHIO.

Tractors, Attachments, Specialized Equipment

478 These tractors meet your basic job needs—economy, dependability, versatility and service. They have the power, the attachments and specialized equipment for almost any materials handling or grounds maintenance job and allow you to select the right tractor to meet your needs. For full line catalog, write TRACTOR AND IMPLEMENT DIV., FORD MOTOR CO., BIRMINGHAM, MICH.

Variable Cab-Controlled Materials Spreader Reduces Waste

479 The new HI-WAY Model TG saves time and materials on any job. A touch of a fast-acting hydraulic control in the cab enables the driver to select any spreading width from 5' to 40'. A similar control regulates flow of material and free-flowing is non-existent when the auger is stopped. For full facts, write HIGHWAY EQUIPMENT CO., 634 B "D" AVE. N.W., CEDAR RAPIDS, IA.

Construction Machinery Literature

480 The following catalogs cover construction machinery manufactured by ALLIS-CHALMERS MFG. CO., CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS. *No.* 1092 reviews the 7,000-pound capacity rubber-tired TL-16 Tractoloader; *No.* 1093 the 9,000-pound TL-20 Tractoloader. *MS*-1133 covers the HD-11G tractor shovel; *MS*-1148 the Model Forty Five motor grader and *MS*-1348, products of the recently acquired Deerfield Works.

How, When and Where to Use Warning Lights

481 This hazard-warning planner will enable you to quickly determine how, when and where to use each type of warning light in a 3-way hazard warning system and so assure maximum safety under all weather conditions and all types of roads and speeds. Slide Chart can be obtained from R. E. DIETZ CO., 100 LEAVENWORTH AVE., SYRACUSE 1, N. Y. for $1 each.

Personalize Municipal Vehicles

482 Maco decals provide colorful, uniform identification for municipal fleets at low cost. They are readily applied, withstand long, hard wear under weather extremes with quality color pigments and synthetic binders to assure proper flexibility and tensile strength of decal film. To obtain samples, price information and catalog of ideas, write MATHEWS COMPANY, 827 S. HARVEY AVE., OAK PARK, ILL.

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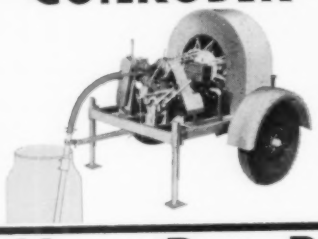

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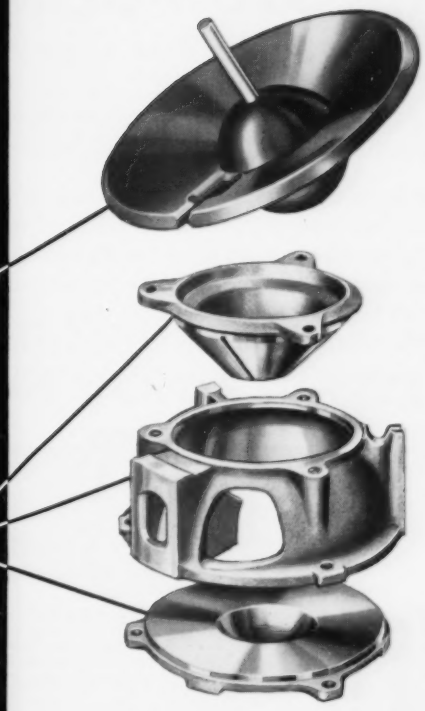

for greater accuracy . . . easier, lower cost maintenance

Every engineer knows a cone shape is inherently stronger than a flat shape. Because of this designed-in extra strength, the Hersey Conical Disc Piston requires lighter reinforcing thus increasing its sensitivity and accuracy.

In addition, the conical disc's center of gravity is slightly above center of the ball, resulting in still further sensitivity over that of a flat shape.

The conical disc also makes possible a 3-piece measuring chamber. Only the relatively inexpensive top or bottom plate will ever need replacing. The more expensive chamber ring will never require repairs.

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Model HF and F—⅝", ¾", 1"

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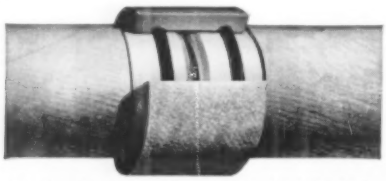
ASBESTOS-CEMENT PRESSURE PIPE

ITS BORE STAYS CLEAN YEAR AFTER YEAR FOR UNINTERRUPTED, TROUBLE-FREE SERVICE

"K&M" Asbestos-Cement Pressure Pipe is as modern as the Jet Age in which we live.

The bore remains smooth and clean always. Pumping costs remain low. Made of tough, high-tensile-strength asbestos fibers and portland cement, it's practically indestructible. Won't corrode or tuberculate. And, it's completely immune to electrolysis. Joints are permanently, automatically root-tight and water-tight.



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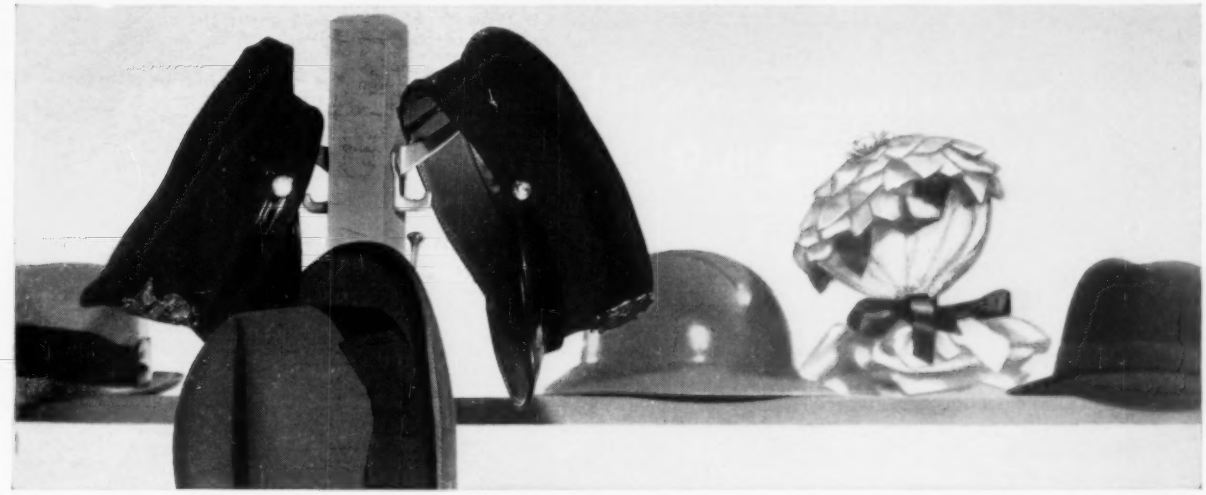

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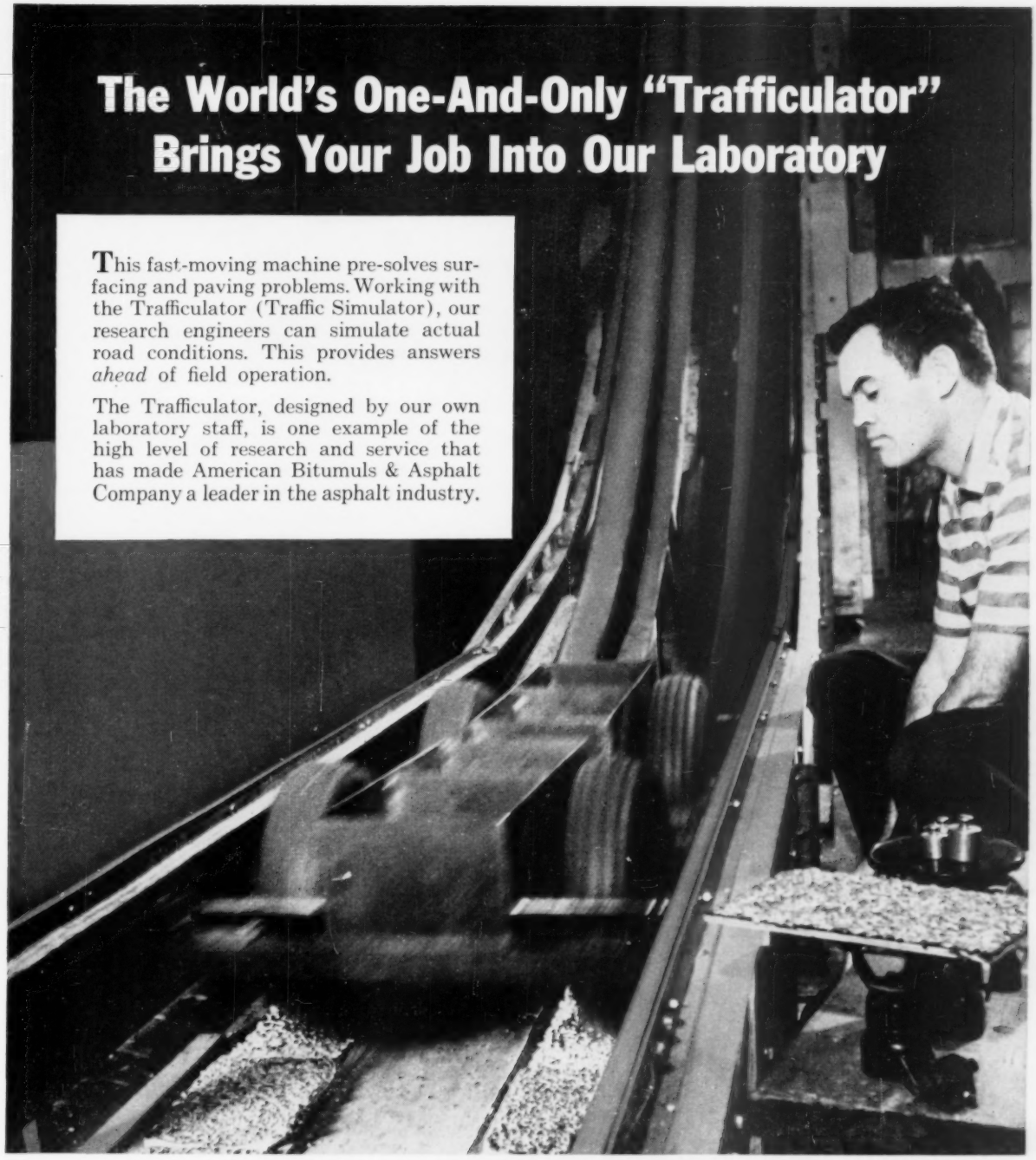
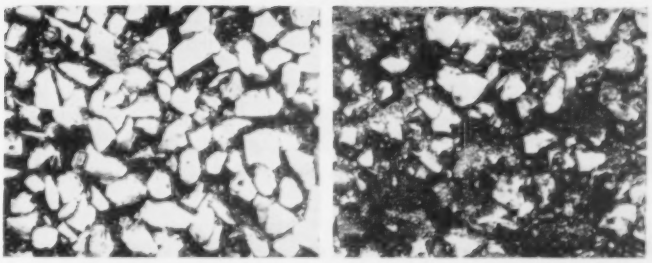
The Trafficulator, designed by our own laboratory staff, is one example of the high level of research and service that has made American Bitumuls & Asphalt Company a leader in the asphalt industry.



Trafficulator Tests Prove Cationic Bitumuls Reduces Loss of Siliceous Cover Stone



After 1,000 passes by the Trafficulator, cover stone retention on the Cationic panel (left) is 70% better (by weight) than on the panel prepared with regular grade emulsion.

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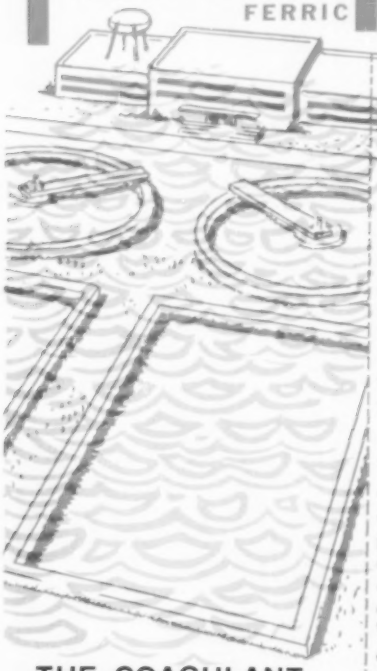

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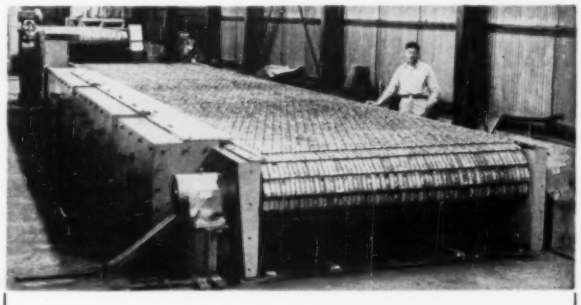

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"MAINTENANCE PRODUCTION TRIPLED... ...COSTS DECREASED 80%"

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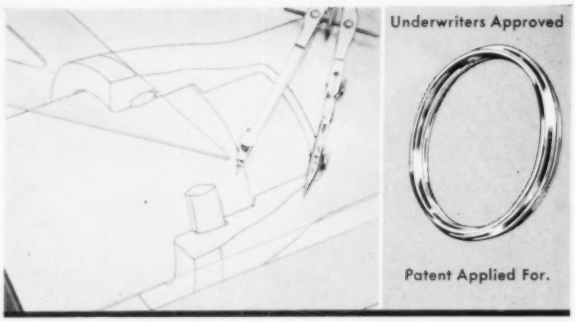

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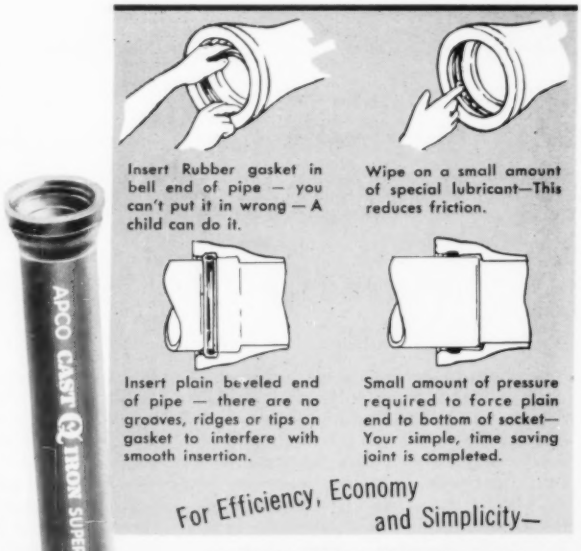
Insert Rubber gasket in bell end of pipe — you can't put it in wrong — A child can do it.
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Small amount of pressure required to force plain end to bottom of socket—Your simple, time saving joint is completed.
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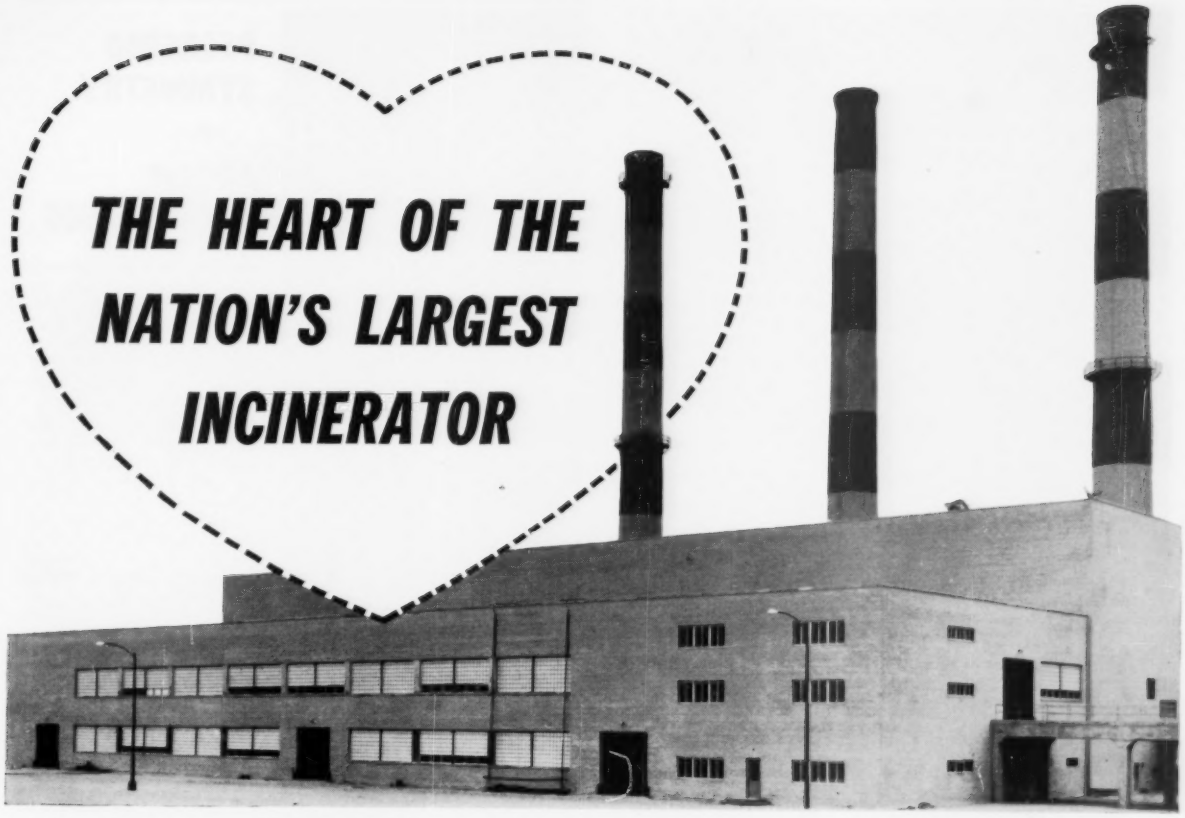

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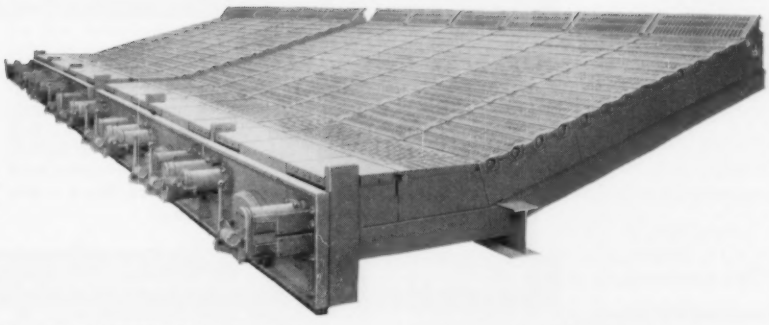

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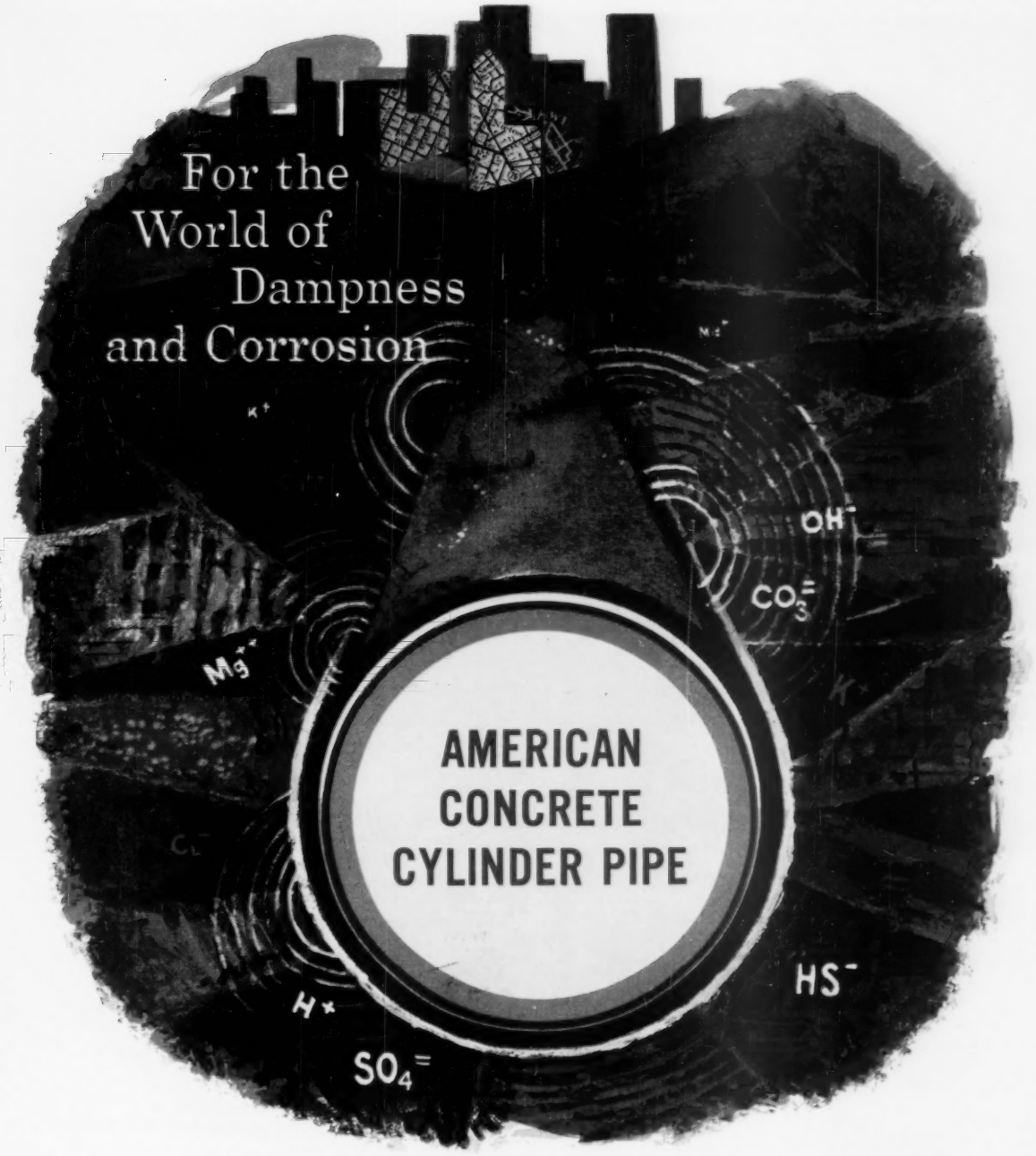

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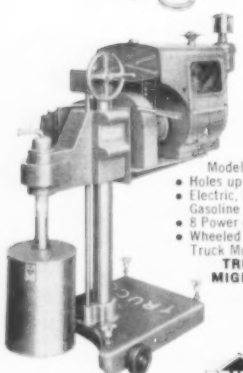

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How Cooper-Bessemer blowers assure dependable sewage aeration

The four Cooper-Bessemer Centrifugal Blowers shown above supply air for sewage aeration at the addition to the sewage treatment plant of Washington, D. C. This modern plant, designed by Greeley and Hansen, Consulting Engineers, Chicago, will handle 290 mgd and serve a population of 1,500,000.

The four Cooper-Bessemer blowers have a total capacity of 160,000 cfm, sufficient to supply 0.8 cu. ft. per gallon of sewage. Continuous, 24-hour operation demands utmost *reliability* of the equipment. This is assured by features such as the impeller of Carilloy T-1, shown above.

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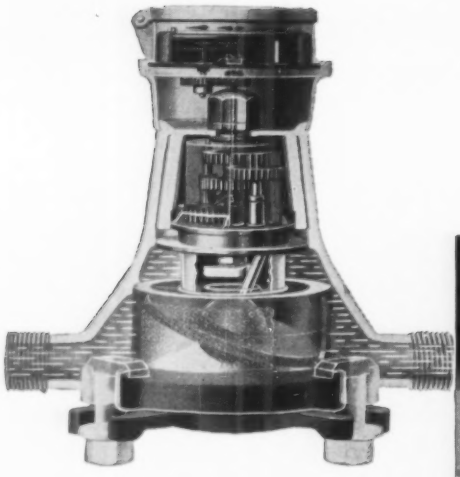

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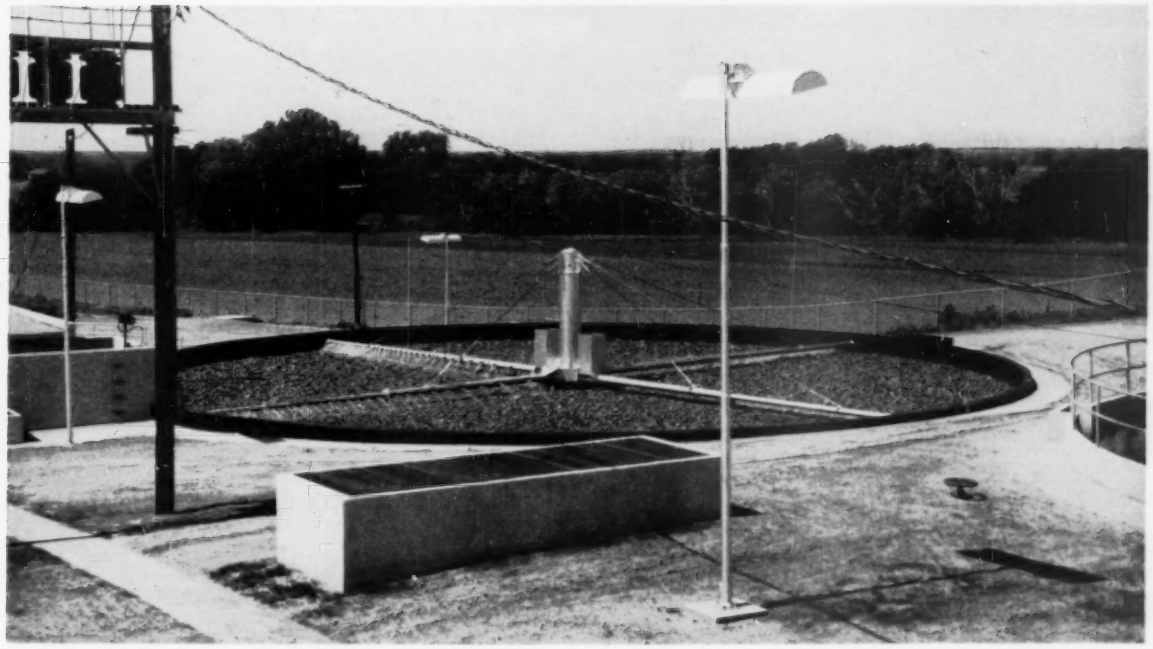
FEBRUARY 1960

The American City



A single 80-foot diameter trickling filter provides secondary treatment, followed by secondary clarification.

We're Proud of Our River — Now

Superior, Neb., uses a simple, practical sewage purification plant to protect and help beautify the river nearby

By **ARABELLE P. HANNA**, Mayor

Mayor Arabelle P. Hanna

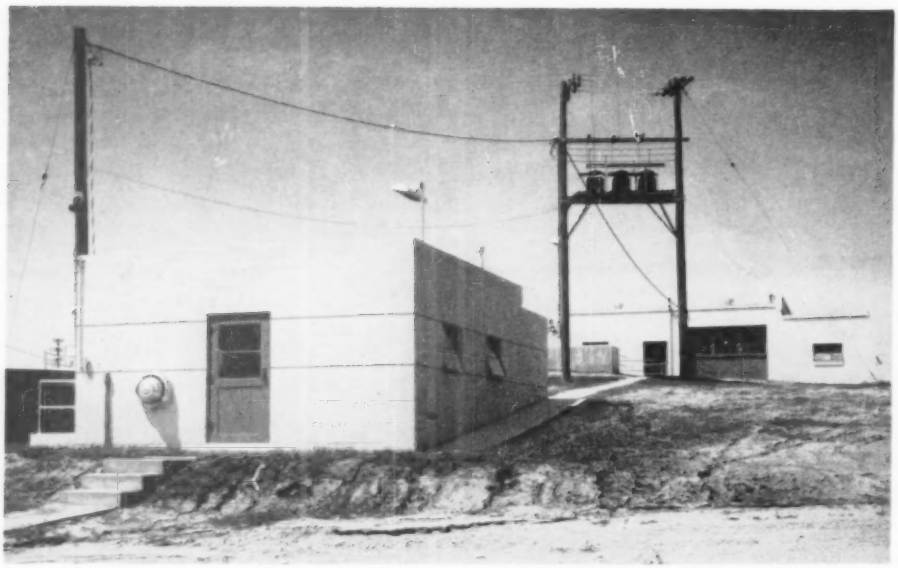
Our faces don't get red anymore when some visitor asks us what we are doing to the Republican River which flows past our boundaries. Without being accused of partisan politics, what we had been doing to that river by dumping our sewage into it was shameful. But all that is now behind us.

As everyone knows, when public water supply starts, public sewers are bound to follow. Superior built its first waterworks system in 1888. Our citizens tried for a period to get along with cesspools but switched to sewers in 1900, disposing of the liquid waste in the river.

In 1935, the Republican River went on a rampage and washed away the sewage outfall. As many of us remember, this was one of the very few evidences of activity that had a "Republican" tag on it in those depression-ridden years. The city took the cheapest way out and discharged the sewage into a tailrace of an old city power plant, not an attractive operation.

In 1951, the Bureau of Reclamation acquired the power plant and discontinued the use of the race. The city then realized that it would have to do something, and retained Mousel & Wright, consulting engineers of McCook, Neb., to study the problem.

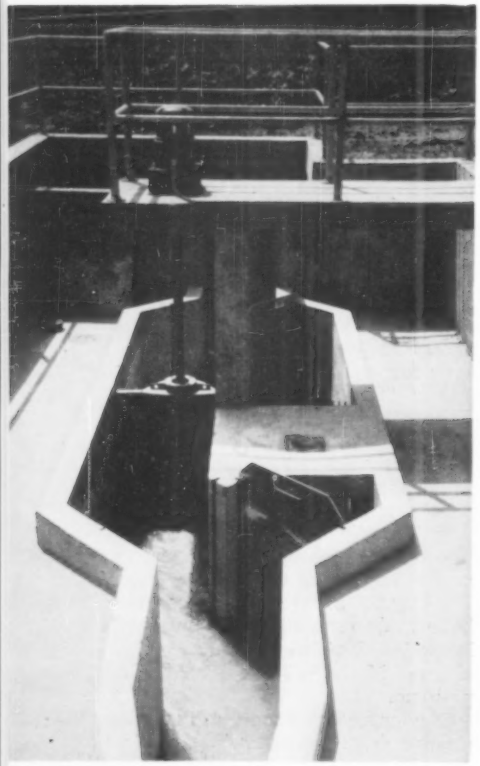
The engineers reported that the sewage from our city had a bio-



The plant's two buildings include the raw water pump station (foreground) and the main building, housing an office, laboratory, garage and vacuum filter room.

chemical oxygen demand equivalent to 9,700 people. Three major industries discharge waste with a population equivalent to 4,400. The remainder represents minor industries and domestic population.

The engineers told us that to avoid damaging the river we should purify the sewage with a trickling-filter type plant. After further study, we acted in 1957, taking advantage of the Federal Water Pollution Act which provides a federal grant of 30% of the construction cost.



Sewage passes through this comminutor before being pumped to the primary clarifier.

In the new plant, the sewage enters through a Parshall flume, where the volume is measured by a Republic flow meter with a remote recording instrument located in the office. The sewage then passes through an Infilco comminutor so that large, floating solids can be ground up, making it easier for them to pass through the lift pumps. The comminutor has a bar-screen bypass which can be used if needed.

The sewage then enters through a lift station where a set of three Fairbanks - Morse pumps raise the sewage 30 feet so that it can flow the rest of the way by gravity. Pumps are electrically powered by Fairbanks - Morse 7.5 - hp motors.

The sewage then flows to the primary settling tank, 45 feet in diameter, equipped with Infilco sludge - removal equipment and skimmer. The tank is designed to provide a detention of 2.319 hours at design flow of 600 gpm or 864 mgd. It also is designed to permit overflow of 543.24 gallons per day per square foot of surface area.

The suspended sewage then flows to a trickling filter, 80 feet in diameter having a six-foot layer of rock. This filter was designed to permit loading of 1428.0 pounds of biochemical oxygen demand per day. The bacteria growths on the rocks destroy practically all the remaining polluting material in the sewage that will not settle out.

The purified sewage then goes to the final clarifier, designed substantially the same as the primary, and from there, the liquid waste, free from harmful products, flows into the Republican River.

To take care of the sludge removed in the settling tanks, we decided to do away with digesters and dehydrate fresh raw sludge directly on a Komline-Sanderson vacuum filter. This looks like a simple, clean operation. Moreover, our industries won't have to worry whether their waste will damage the bacteria necessary to keep the digesters functioning. Our vacuum filter is seven feet in diameter, has a four-foot face width, and is designed to discharge the sludge at the rate of 8.7 pounds per square foot of area. It is of the spring-coil type, meaning it is self-cleaning.

The plant building is trim and attractive. The grounds are being landscaped by our own Board of Public Works. We have a competent and capable superintendent, Earl Osborne, who operates the plant and conducts the laboratory tests to show the degree of purity that the plant is able to achieve and to maintain the plant operation most efficiently. He has a separate laboratory in the plant using Metalab equipment to conduct the tests.

Heating cables are threaded through Dresser coupling and anchor bracket that suspends pipe from viaduct structure. Note thermal insulating (right).

Overhead Fire Main Heated Electrically

Chicago's Department of Water and Sewers and the Prudential Insurance Company combine to whip design problems—install fire mains for new building

By **ERWIN EDELSTEIN**
Chief Engineer
Water Distribution Division

Many knotty design problems had to be solved before installation of an unusual system of water mains, designed to furnish external fire protection for Prudential Plaza, the insurance company's new 42-story Chicago headquarters, and its surrounding area.

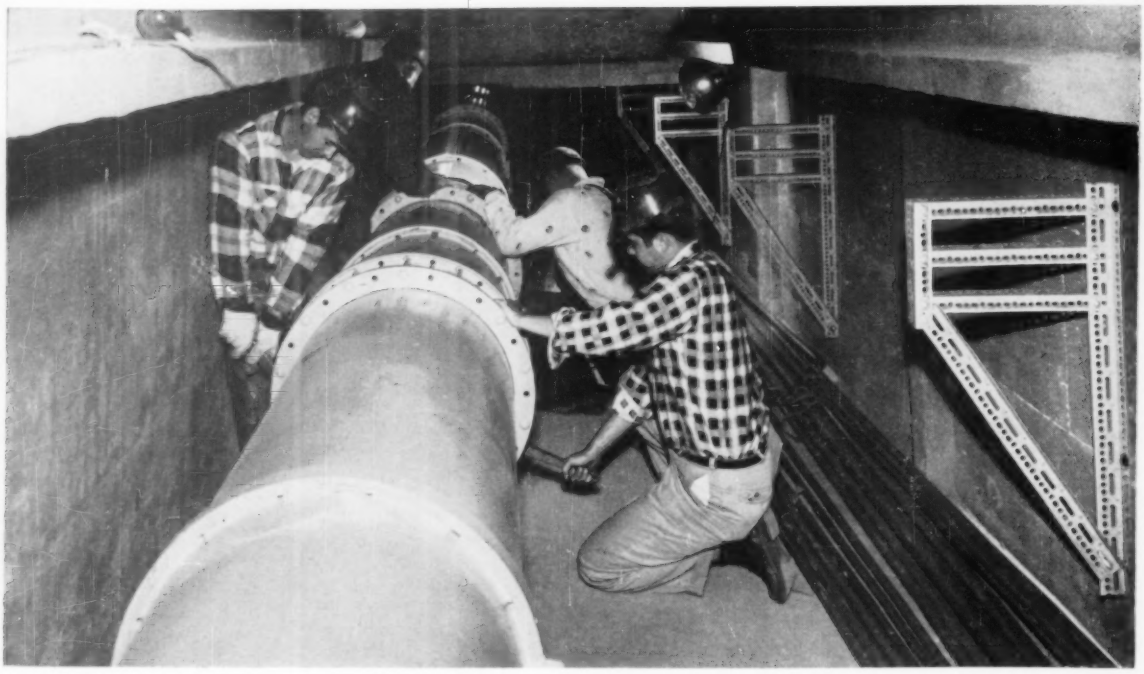
The system is the first stage of an over-all fire protection and ordinary water supply network for an 18-block real estate subdivision, of which the building is a unit. The area, lying east of Chicago's Loop, includes the terminal of the Illinois Central Railroad, with terminal facilities at a grade 12 feet below Michigan Avenue. All streets in the area, including Michigan Avenue, are built on elevated steel trestlework.

Of 1,255 feet of 18- and 24-inch-diameter steel pipe—with ½-inch wall thickness—1,212 feet had to be installed above ground. This presented the problem of designing a system of suspension supports below the girder-and-beam framing of the elevated streets.

The surfaces of the streets that abut the Prudential building rise in elevation from 19.8 feet in Michigan Avenue to 47 feet in Stetson Avenue, confronting designers with a real anchorage problem. But perhaps the most unusual challenge was to provide protection for the suspended pipe from the freezing winter temperatures that prevail in Chicago.

The Main Line

Pipe sections, designed according to National Bureau of Fire Underwriters' requirements to furnish 12,000 gallons of water per minute at 10 psi, are joined with Dresser couplings. There are five hydrants



in this first portion of the system.

Suspended from sidewalk beams on the south side of Lake Street are 320 feet of 24-inch main. The remaining 892 feet of pipe are supported by the floor of an overhead gallery hung from sidewalk beams of East Lake Street, Stetson Avenue, and Randolph Street, abutting the Prudential Plaza.

The supporting beams, originally designed as cantilevers projecting from curb columns, were redesigned as simple beams when it was found practical to provide additional column supports along the south edge of the Lake Street sidewalk. These columns are independent of those at the north wall of the building but are supported on the same caissons that support the building wall columns.

Most of the pipe was installed on a slope parallel to the grade of the viaducts, so secure anchoring of the pipe to the gallery was necessary to prevent sliding under impact of water or traffic vibration. This anchorage was provided by steel horseshoe-shaped clamps imbedded in the concrete gallery floor, with two 1-inch-diameter standard turnbuckles.

The steel band in each clamp is 2 inches wide by half an inch thick, with an insulating gasket tape of similar cross section separating the steel clamp from the steel pipe. During tests, the pipe resisted axial movement up to 5,000 pounds of pull per clamp when turnbuckles were tightened to 30 foot-pounds of torque. Clamps in the actual installation were ultimately tightened to 100 foot-pounds of torque, more than three times the torque used in tests.

Electrical insulation, necessitated by proximity of the electrified railroad below, and the possibility of electrolysis in the pipe, is a rubberized asbestos material called Kearsage gasketing tape, which has a high dielectric strength, as well as a high coefficient of friction. Electrical insulation at thrust anchors for tees and dead-ends of the system was provided by a cloth-base Bakelite sheet of high dielectric strength.

To provide flexibility at viaduct expansion joints (they run transverse to the pipeline), toroidal (accordion-type) expansion joints were installed. These consist of three internal toroids, which can accommodate 1 inch of axial and $\frac{3}{8}$ inch of lateral movement. They are made of stainless steel with $\frac{1}{8}$-inch wall thickness. A $\frac{1}{2}$-inch gap for expansion was left in each Dresser-coupled joint to permit $\frac{3}{8}$ of an inch expansion and contraction per joint and to absorb traffic vibration safely. No such gaps were left at welded joints between valves and thrust anchors, so axial movement at these critical points was prevented.

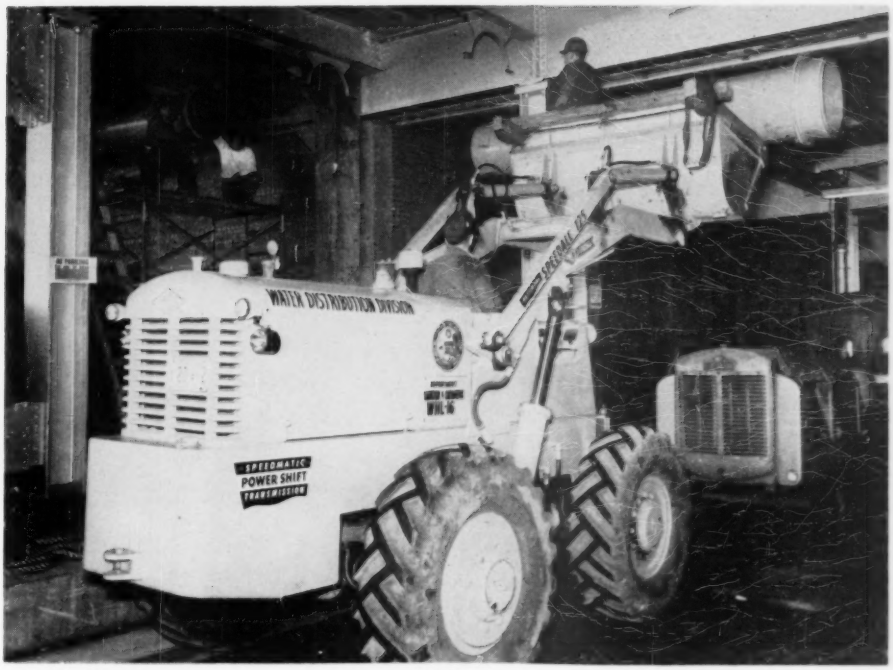
Because the entire length of the pipeline is exposed to freezing temperatures, an automatic heating system was installed. General Electric lead-sheathed heating cables were strung parallel to and on the surface of the pipe, spaced approximately 6 inches on centers circumferentially. There are 14 cables on the 24-inch pipe and ten on the 18-inch pipe. Cables are threaded through holes drilled in the Dresser coupling followers. Cable requirements called for one lineal foot of cable per square foot of pipe surface at −20°F, so there is a safety factor of 2 to 1 in the installation.

Volt Supply

The cable requires two volts per lineal foot and the system is designed for nominal 240-foot lengths in 120-foot-long circuit loops, thus each loop requires 480 volts. Electrical power may be supplied by either or both of two 208/480-volt transformers. Two separate parallel electric feeders supply alternate circuits of heating cables about the circumference as an additional safety measure. Failure of one of the feeders will still allow sufficient protection at −20°F.

The heating system is divided into six sections, each with two sepa-

Inside gallery, mechanics tighten coupling nuts that join lengths of 24-inch main. Wall brackets will carry conduit for pipe-heating system.



This high-lift Pettibone Speedall loader is used to install 24-inch steel pipe in an exposed part of the fire-protection main system.

rate electric feeders controlled by a separate thermostat. If either half of any section is demanding heat and there is a failure to energize the section, such a failure will be indicated on each of two alarm panels. One alarm is located in a room at the supply end of the line under the control of the Water Distribution Division and another is in a constantly manned security room within the Prudential building itself.

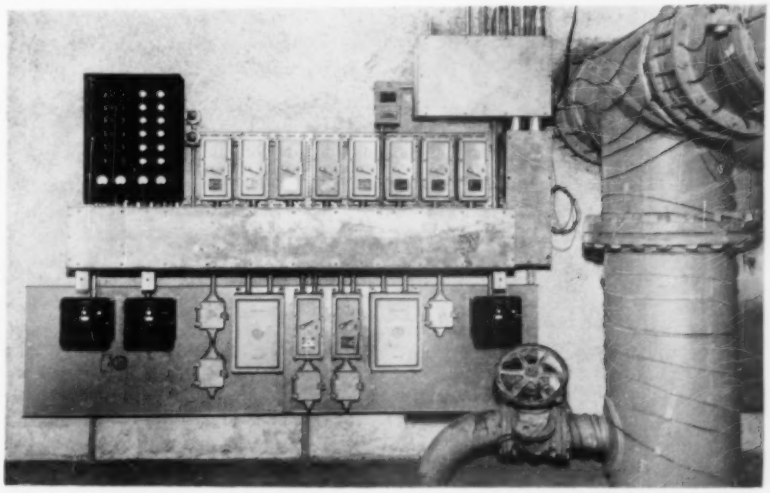
Temperature recorders are located at four different locations along the pipeline, and a dangerous temperature drop also sounds the alarm at the control points. The heating system is rated at 100 kilowatts capacity.

Thermal insulation consisting of asbestos sponge felt, pre-molded in three-foot lengths to fit the curvature of the pipe, contains 40 laminations per inch of thickness. The section of 24-inch main not in the gallery is covered by 2½ inches of the material and the remainder with two-inch thickness. Insulation of valves, fittings and dead-ends is by fiber glass. Since the thermal insulation is supported on the ½-inch wiring coils by ¾-inch-wide stainless steel straps, there is the added insulation effect of a ½-inch dead-air space between the pipe and the inner surface of the insulation.

Those portions of the line that are exposed to pedestrian traffic are protected against vandalism by 22-gauge sheet steel.

The pipeline and heating system have weathered two complete cycles of high and low temperatures without failure. This is especially significant, because the first half of December 1958 was the coldest in the history of the Chicago Weather Bureau.

The pipeline was installed by city employees of the Water Distribution Division, under the direction of D. W. Anglim, central district superintendent. The electrical heating system was installed under private contract with the W. J. O'Brien Electric Co. Insulation was furnished by the Inland Insulation Co. and the pipe and Dresser couplings were furnished by the Federal Pipe and Supply Company for this unusual project.



One of six sectional control stations that monitor the heating system. Black box at left is the alarm that signals power failure or temperature drop.

Woodstock's street-upgrading program consists of transforming winding roadways (left) into wide, straight streets (right) properly graded for future addition of asphalt surfacing, curbs, and gutters.

Today's Streets—

Woodstock, Ill., develops a long-range low-cost street program that will culminate in high-type pavement

By **PETE A. PAKEY***
City Manager

Today property owners within Woodstock, Ill., are reluctant to use special-assessment procedures for street improvements. However, as the streets are improved with low-type surfacing, the property owners expect more, and this expectation may eventually effect approval of the proposed special-assessment method. Thus we feel our present program of upgrading streets is the beginning of what ultimately should lead to complete street improvements.

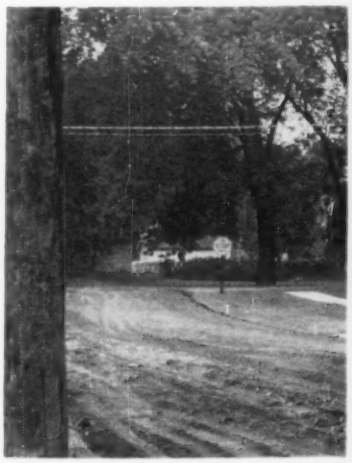
Back in 1953 the city began a long-range plan for the improvement of arterial streets with money available from the state motor-fuel tax. This plan is being followed as originally outlined with minor changes incorporated from year to year.

Regarding the use of motor fuel tax funds by municipalities in Illinois, the motor fuel tax law sets forth the various purposes for which this money can be used. The amount received by the various municipalities comes to approximately $5 a person a year. The municipality may not spend on street maintenance, during any one calendar year, an amount of the tax money in excess of 25% of the total received the previous year. The balance of 75% is used for the construction of arterial streets (defined as original construction or extensive reconstruction or improvement of existing facilities).

Looking into the future, the City Council took another step toward complete street improvements in 1957 by adopting a comprehensive subdivision control ordinance. One provision of this ordinance requires all future subdivisions within the corporate limits, and also within a radius of 1½ miles of the corporate limits, to have all streets fully improved with curb and gutter and a paved surface. At the same time the city took a look at its own streets and decided to embark on a general street-upgrading program.

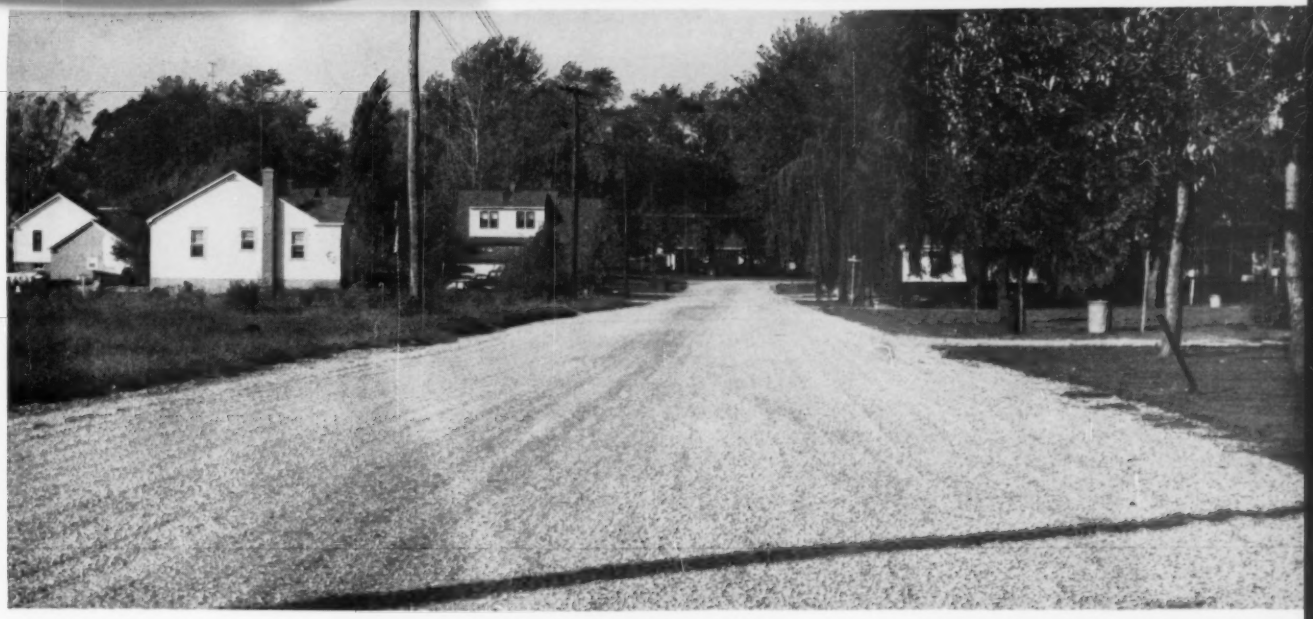
In the summer of 1959 the City Council approved the purchase of a Galion Model 104 motor grader. Using this newly acquired piece of equipment, together with our Michigan front-end loader, Galion tandem roller, and several trucks to haul gravel, we began a program to realign and widen all existing unpaved streets.

Since funds are limited, City Engineer Thomas Zeigler and Director of Public Works William Earl made a street survey and on a priority



Municipal forces with city-owned equipment prepared the streets for seal coating by contract.

* Before accepting the position of City Manager of Woodstock in 1957, Mr. Pakey served three years as city engineer of Rock Island, Ill., and spent 15 years with the Illinois Division of Highways. He holds a degree in civil engineering from the University of Illinois.



Tomorrow's Base Course

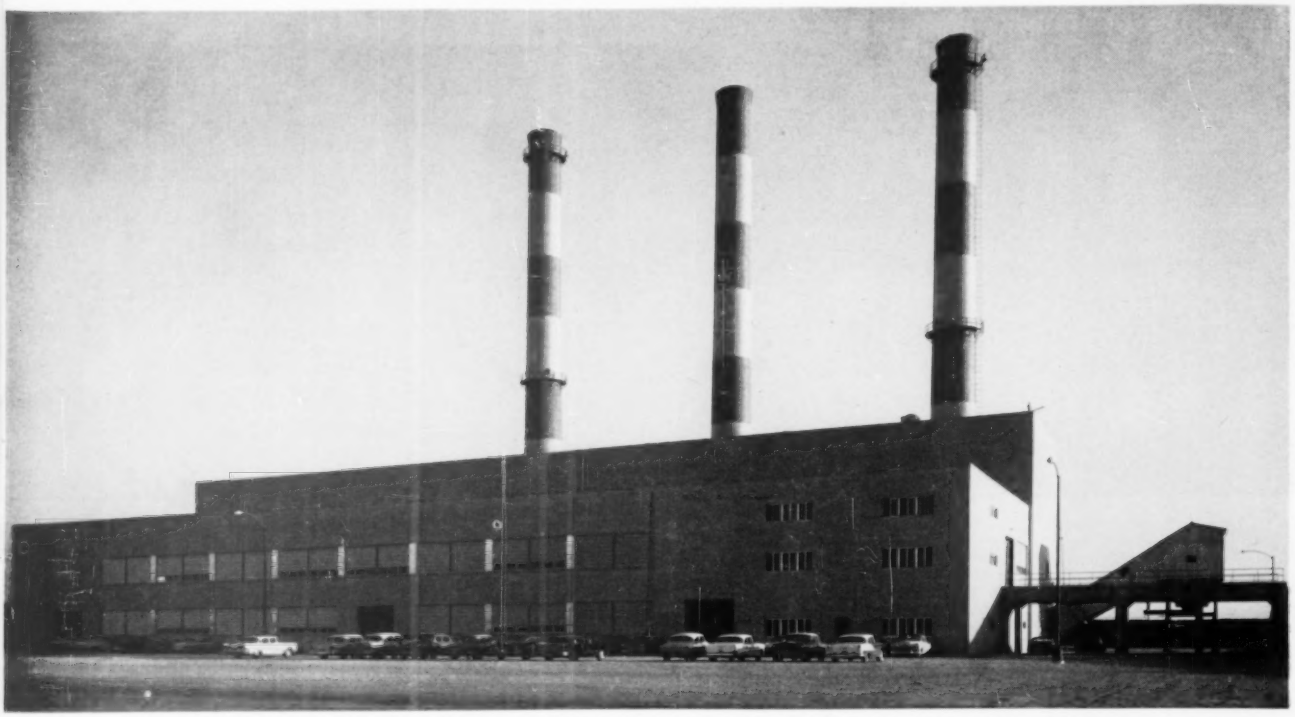
basis chose the streets to be improved in 1959. We then awarded a contract for prime and seal-coat bituminous material and seal-coat aggregate. City forces prepared the streets and the contractor applied the prime coat (MC-O), seal coat (MC-5) and the seal-coat aggregate.

The new motor patrol was delivered just two weeks before the award of the material contract and we put it to work immediately. Keeping in mind that a good seal-coated surface on a compacted gravel base makes an excellent foundation for final asphalt surfacing, we widened all streets to 25 feet and set the grade so that, with minimum reworking, a bituminous surface and curb and gutter could be added later to provide the final 30-foot street with drainage away from adjacent properties.

Preparatory work consisted of scarifying all existing surfacing that was suitable, cutting and filling with gravel where needed, and bringing the 25-foot-wide roadway to grade. This was quite a chore, for many of the streets were only 14 to 16 feet wide and meandered all over the right-of-way. Even so, with the equipment on hand all the streets under contract for seal coating (approximately 11,900 lineal feet) were ready within two weeks.

At this point the contractor took over, applying prime coat at the rate of 0.4 gallons per square yard and seal coat at 0.3 gallons per square yard. This was covered with aggregate applied at the rate of 25 pounds per square yard. The work handled by the contractor, including material costs, came to 19 cents per square yard. Our portion of the work, including gravel for base preparation, averaged out to 58 cents per square yard.

We realize this is a temporary type of surfacing, but it does a good job of sprucing up our unpaved streets and keeps our people out of the dust and mud. The additional width allows traffic to drive away from the edge of the surfacing which should reduce the break-up that normally occurs along all edges of seal coating where curb is omitted. Of considerable importance is our feeling that this upgrading program will lead to permanent paving to be paid for by special assessments.



Chicago's 1,200-ton incinerator plant has been designed in a conservative contemporary architectural style.

Calumet Incinerator - -

By **R. H. STELLWAGEN***
Consulting Engineer

With the rapid depletion of existing sanitary-landfill areas and the increase in expense resulting from longer hauls, the City of Chicago in 1955 embarked on a long-range incinerator - construction program. The Calumet plant is the second of four scheduled for construction under this program. The first, the Medill Avenue plant, went into service in 1956 (THE AMERICAN CITY, January 1957, page 96).

The largest built so far in the United States, the Calumet plant contains six furnaces each rated at 200 tons per 24 hours. Planning of the new plant incorporated a number of objectives. Primary, of course, was the requirement that it dispose of all rubbish with maximum efficiency. In addition, it had to be nuisance-free and be able to operate within the strict air-pollution-control ordinances. Tests show that this has been accomplished, along with ease of operation, low maintenance and maximum safety for operating personnel.

Located on the far south side of the city, the plant has a conservative contemporary design carefully keyed to its function. Since it is constructed on landfill area, the entire building is caisson supported. The building exterior is of buff-colored face brick. In addition to the furnace and storage-pit area, the building also provides two large areas for maintenance and garaging of refuse collection equipment.

The six furnaces are each divided into three cells with individual charging and ash removal for each cell. Three 5-ton P & H cranes transfer refuse from the 1,200-ton-capacity storage pit to the various charging hoppers. Material enters the furnace through pneumatic-powered Beaumont Birch gates 5½ feet by 4 feet in size.

Stokers

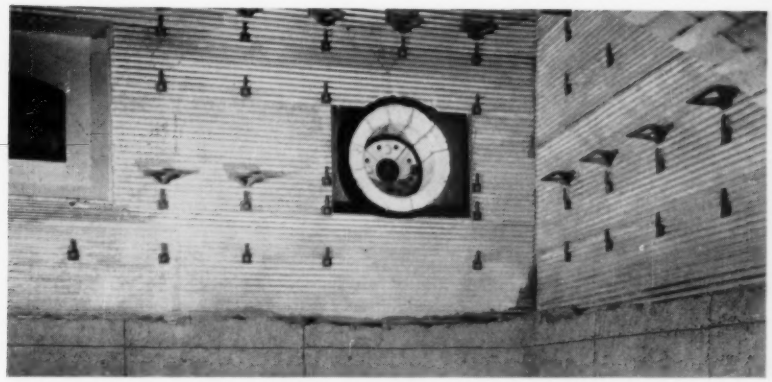
Hydraulically - operated inclined Flynn & Emrich stokers agitate the refuse as it burns. Each stoker is 22½ feet wide and 12 feet deep and can be operated manually or by automatic timer control.

A radial brick chimney, 250 feet high by 12 feet inside diameter, of air-cooled construction, serves each pair of furnaces. The exterior of the chimney matches the buff-colored building brick.

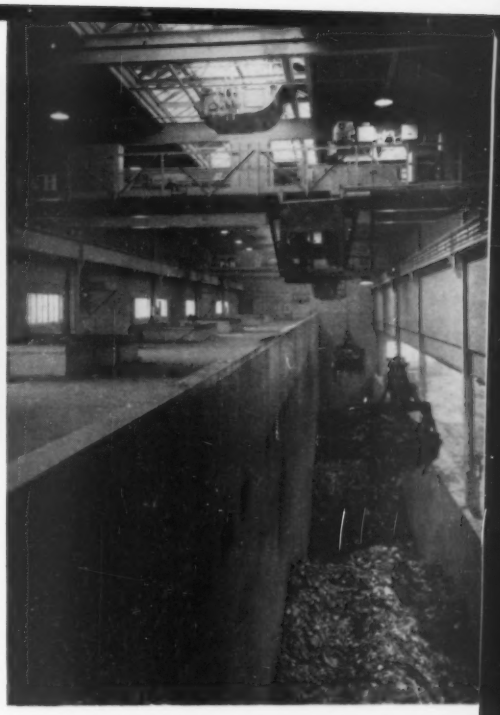
Dual submerged Link-Belt drag-chain conveyors running the length of the building remove and discharge the ash into hoppers for removal by truck. Each conveyor has a capacity of 360 tons per 24 hours.

Large subsidence chambers and a spray chamber with a wet bottom

* Mr. Stellwagen, a consulting engineer since 1946, maintains his office at 629 Buhl Bldg., Detroit 26, Mich. Previously, he had served for 20 years as engineer in charge of mechanical and electrical design for the City of Detroit, during a period when the city was actively engaged in a vigorous incinerator-construction program that attracted nationwide attention. Mr. Stellwagen has the unusual distinction of being one of the few engineers to be elected a member of the Michigan Academy of Sciences, Arts and Letters.



In the combustion chamber the channels providing air-cooling lanes have been covered with corrugated sheets and partially lined with monolithic refractory material. Dual-purpose joints, cut into the lining surface, control expansion and contraction.



Three cranes are available to transfer refuse from the 1,200-ton storage pit to the furnace-charging hoppers.

Chicago's Second, Nation's Largest

assure elimination of the fly ash to meet the air-pollution-control requirements.

Auxiliary equipment includes Barber-Colman instruments, General Blower forced-draft fans with American Blower variable-speed drives and Iron Fireman oil burners for pre-heating at start-up and for maintaining minimum temperature during periods of low-BTU-content refuse.

The plant also includes a waste-heat boiler and a Spencer Turbine Company vacuum cleaning system for cleaning furnaces of fly ash.

Unit Sizes

The design capacity of 200 tons per 24 hours for each furnace is based on a mixed refuse consisting of 46% combustible, 15% moisture, and 39% non-combustible. Chicago's refuse averages 400 to 500 pounds per cubic yard and 4,000 BTU's per pound. The basic sizes of the various units are as follows:

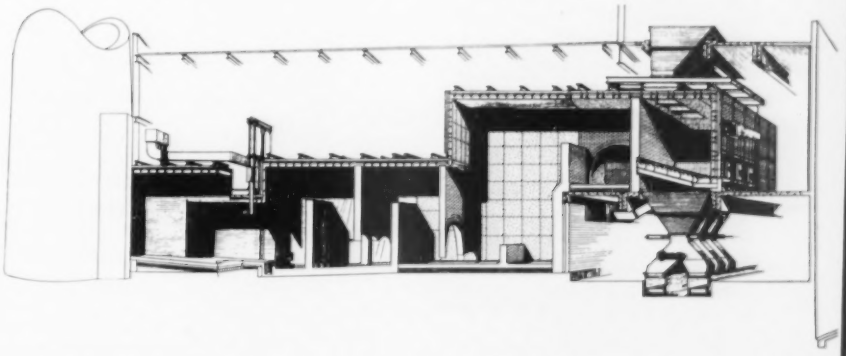
Primary Furnace
- 12 feet deep, 22½ feet long, 10½ feet high (minimum)
- Volume—3,135 cubic feet
- Cross-sectional area—270 square feet

Combustion Chamber
- Volume—6,400 cubic feet
- Cross-sectional area — varies — minimum 124 square feet

Subsidence Chamber
- Volume—8,000 cubic feet
- Cross-sectional area—minimum—200 square feet

Flues (Cross-sectional area)
- Primary to combustion chamber—70 square feet
- Combustion chamber to subsidence chamber—86 square feet
- Spray chamber to stack—60 square feet

The incinerator furnaces, constructed by the Plibrico Co., in-



This drawing shows a sectional view of one of the furnaces. Note the large subsidence chamber, baffles and sprays to remove fly ash.

corporate both sectionally-supported monolithic plastic-firebrick construction and suspended-tile construction. The two types of refractory construction were used to provide the city with an evaluation of the service life and maintenance costs of monolithic construction compared to suspended-tile construction. The Plibrico Co., the Chicago Fire Brick Co., and the Laclede-Christy Works supplied the furnace refractories.

Fly-Ash Elimination

A three-pass system providing five wet-baffle surfaces and a wet bottom where an average of 6 inches water-depth is maintained at all times do an excellent job of removing fly ash. The spray system supplies up to 108 gpm to each furnace.

The first spray-header system, mounted in the ceiling of the spray chamber, discharges the spray from its five nozzles in the same direction as the gas flow. The bridge wall, drop curtain and side walls are wetted by this spray system and thus provide for fly-ash impingement, collection and retention. The floor of the entire spray chamber consists of a pond of water which has a sloped bottom designed to aid the flushing of the collected fly ash to the rear drain in the collection system.

A second bank of six spray heads, installed in the roof of the spray chamber, injects its spray in a counter-current pattern with the gas flow. This bank is thermostatically operated at any pre-determined temperature. A third downpass over the pond floor, without a spray system, serves as a partial drying chamber to reduce carry-over of spray water entrainment.

The spray-system water recirculates through two large Dorr-Oliver classifiers and is re-used from a clear-water basin.

Test Data

Table I lists various data obtained during the performance test. The plant was tested with all six furnaces operating simultaneously, with no auxiliary fuel used. In all cases the incinerators under test were operating at or in excess of the rated burning capacity.

Concurrently with the capacity tests on the plant, independent air pollution tests were run by Fred Rehm of the Wisconsin Chemical and Testing Co. of Milwaukee to determine the effectiveness with sprays on, spray partially on, and sprays off, as well as the optimum conditions of the spray system. Table II shows the results obtained from the tests.

Separate tests were run to evaluate the effect of the water sprays on CO_2 absorption. These tests showed that no significant amount of CO_2 is removed from the effluent gas stream by the use of the wet collector system. Both the system and the subsequent water temperatures as well as the low water rate preclude the absorption of large quantities of CO_2 from the gas stream.

The location of sampling of the stack emission during these tests was based on the A.S.M.E. requirement that at least ten diameters of straight run of duct precede the sampling location. A three-foot-wide platform had been provided on these chimneys at the midway point in the 250-foot stack height. At this point two six-inch pipe nipples were grouted into the interior of the stack at right angles to each other. This arrangement permitted sampling by the "balanced-static-tube method."

The results exceeded our expectations. The Chicago code limits particulate emission to 0.35 grains per cubic foot SCTP (standard conditions of temperature and pressure) but does not contain a 12% CO_2 correction. The test results showed that, with all sprays operating under forced draft or natural draft conditions, the plant complied with the code and was well within the requirements had a 12% CO_2 correction been applied.

A continuous watch was kept on the visual emissions from the three stacks during the four-day uninterrupted tests and a record maintained on charts of Ringelmann intensities. Observers noted visual smoke that could be assigned a Ringelmann chart number of 1 on only one occasion during the entire test period.

The Calumet plant was constructed under the administration of Mayor Richard J. Daley and Commissioner of Streets and Sanitation Lloyd M. Johnson. George L. DeMent is the Commissioner of Public Works. The building was designed and constructed under the supervision of Paul Gerhardt, Jr., City Architect. The writer served as incinerator consultant.

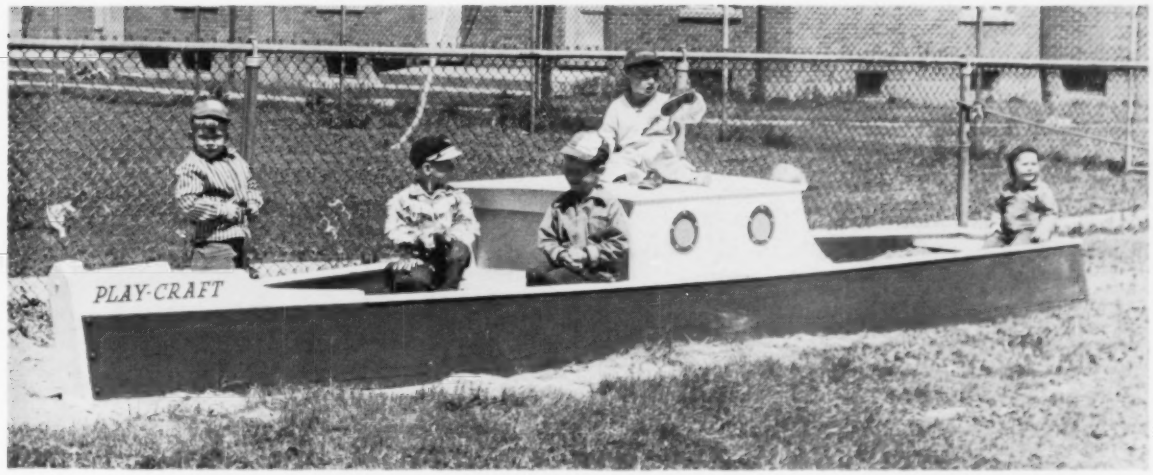
Table I
PERFORMANCE DATA

	Specification Requirements	*Acceptance Test Results*
Test Duration	96 Hours	96 Hours
Refuse Incinerated	4800 Tons	5642.96 Tons
Capacity Percentage	100%	117.6%
Refuse Analysis—Combustible	46%	34.05%
Non-Combustible	39%	37.39%
Moisture	15%	28.56%
Heat Value	4000 BTU/lb.	2724 BTU/lb.

Table II
AIR POLLUTION TEST RESULTS
(Expressed in grams per cubic foot)

Test Conditions	*As Sampled*	*Corrected to SCTP* (60°F-30.0"Hg)*	*Corrected to SCTP* and 12% CD Basis*
Forced draft all sprays on wet bottom used	0.178	0.262	0.073
Natural draft all sprays on wet bottom used	0.034	0.450	0.151
Forced draft all sprays off wet bottom used	0.2178	0.5190	1.510
Natural draft all sprays off wet bottom used	0.2125	0.5150	1.140

* Stand conditions of temperature and pressure.



Children love realism in play equipment. The Rochester Park Bureau gives it to them in this boat-shaped sandbox.

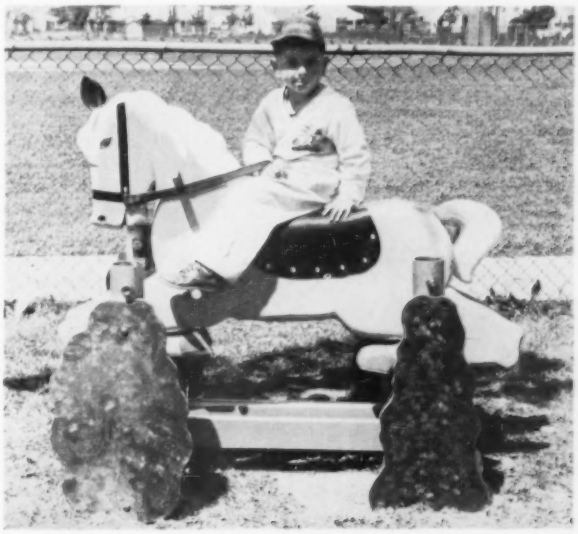
Some Inexpensive, Unusual Playground Equipment

By **JACOB GERLING**, Superintendent of Maintenance
Park Bureau, Rochester, New York

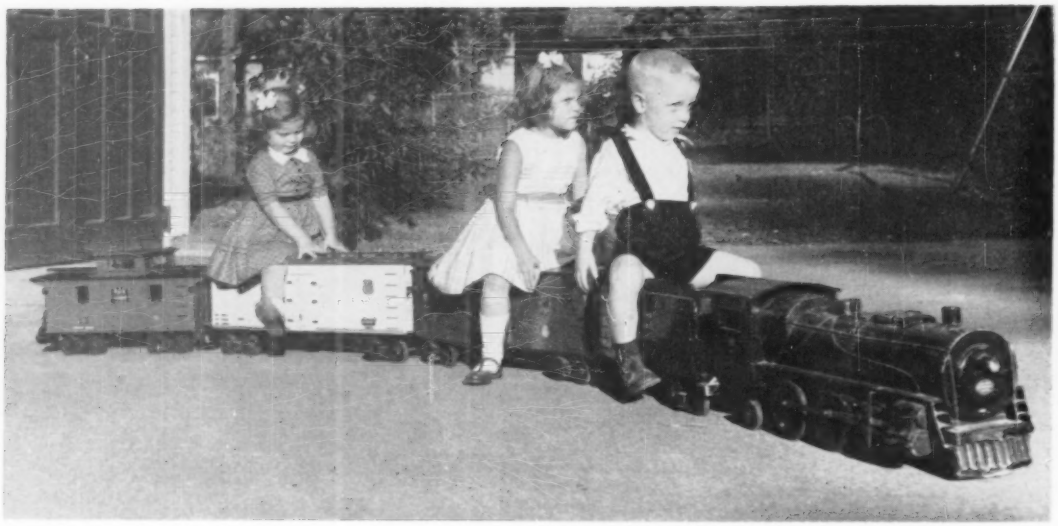
Park officials must first consider safety and appeal in the selection of playground equipment for small children. They must also give priority to cost and durability in this age of ever-increasing demands on municipal budgets. With these factors in mind, we of Rochester's Park Bureau set about developing some improvements on standard playground equipment.

One of our first innovations, suggested by Joseph Caverly, Superintendent of Recreation, was a new sandbox design, different from the plain wood-and/or-metal types commonly in use. Mr. Caverly, before coming to Rochester as head of his department, noted the strong appeal of old flat-bottom rowboats, especially to children considerably older than the age-group usually attracted to the old-style sandboxes. The first "Playcraft" sandboxes built in the department's maintenance shop produced gratifying results and more than justified the increase in construction costs over the old-fashioned, square wooden boxes. With Playcraft sandboxes the children become pirates, explorers, whalers or battleship crewmen. The sandbox's bright red hulls and white-enameled cabins with "brass" portholes present a pleasing accent which contribute considerably to the attractiveness of the play area.

The rocking horse has always been a favorite with all children. Our full-size horses were built by using four pieces of two-inch kiln-dried oak, glued and bolted together for sufficient body thickness; the head and tail were cut on two inner laminations and the legs were shaped on outer pieces. We cut saddles from ¼-inch rubber matting and nailed them on with brass studs; bridle and reins were made



The Bureau's toys include a sturdy all-weather rocking horse . . .



of harness leather and handgrips and footrests are heavy dowels. Considerable handcarving was needed to shape the head, tail and legs but the pleasing appearance of the finished product was well worth the work entailed. The rocking motion is a 26-inch forward-and-backward swing, with an 8-inch rise, and was accomplished by using the usual swinging-bar suspension method. The only danger point was where the bars pass the stationary posts, and 6x8-inch metal plates were bolted to the posts at this pivot point to eliminate any possibility of injury to hands or feet. The plywood evergreen silhouettes bolted to the posts, in the illustration, serve the same purpose but are more costly to make and no better protection. While rocking horses of this size and lifelike detail are quite expensive to build, even with department shop facilities, their great appeal and popularity certainly make the initial cost and maintenance service worthwhile.

No one toy, made by this writer, was so enthusiastically received and constantly enjoyed as the child-scale working crane; after five years of use, it is still the first choice of youngsters from three to twelve and, when available, it is never without an "operator" and several "crewmen" impatiently awaiting their turn at the controls. This exceptional, lasting interest is sustained because nothing affords such complete satisfaction and genuine pleasure to most children as having access to a working model of mechanical equipment large enough for them to mount and actually operate. For outdoor use, in season, and indoors as well, it is difficult to find a piece of playground equipment so thoroughly enjoyed. Easily constructed by skilled workers in the department, from inexpensive materials, this realistic toy would prove very attractive to children.

The crane pictured has a stationary boom, stayed with ⅛-inch cables attached with adjustable turnbuckles, and the hoisting line is reeled on a hand-cranked winch fitted with a ratchet; when lowering the loaded line, the ratchet is released and the cable reel is controlled by a leather brake-strap passed over a drum on a reel shaft and is worked with a foot-pedal. The cab and boom can be rotated 180° by a handwheel-turned vertical shaft with a pinion traveling around a fixed gear beneath the mounting platform. This swiveling feature adds a lot to the fun of operation but necessitates use of "outrigger" legs (made of ¾-inch pipe) to keep an over-loaded boom from toppling the crane sidewise. Omitting the rotating mechanism simplified construction quite a bit and eliminated all possibility of serious injury without too much lessening of the operator's pleasure. As supplementary equipment, wooden "girders," assembled with bolts, and a "concrete" ramp and abutment sections for a bridge can be easily devised.

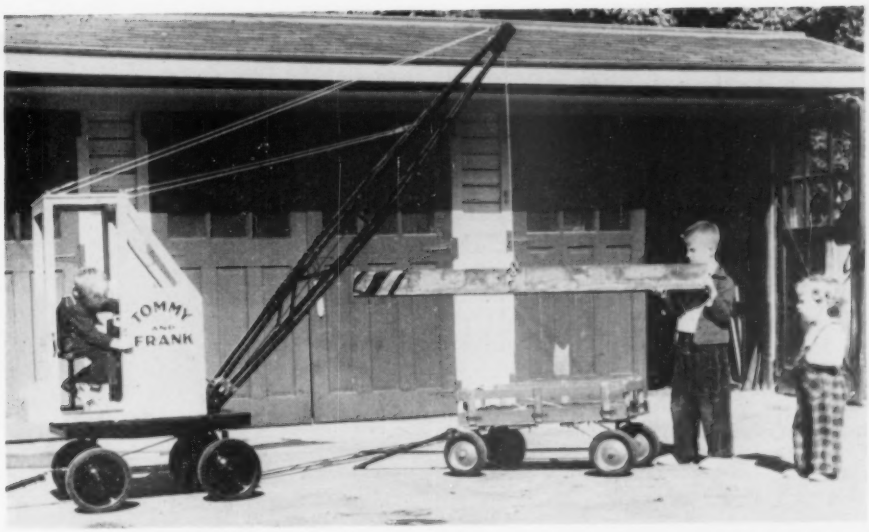
One has but to watch any group of children playing on a slope, summer or winter, to realize how much exhilarating fun can be had on even a little "romping hill," and it is Mr. Caverly's intention to build play-hills in some of our playgrounds through an extensive program of recreation-facility expansion. But few play units can be installed as inexpensively and a romping hill can be used for coasting in winter.

Suggested and modeled by Emmett McGee, of our city's engineering department, is the pirates' cave pictured, which is being considered for installation in small children's play areas. The larger "props" such as driftwood furniture and treasure chests, would be securely anchored in place and such pirate ware as cutlasses and horse pistols can be left to the children, who can be depended on to not only make these, but will come dressed for playing pirate with eye-patches, bandana headdress and peg-legs. Again, this pirate cave can be built at practically no cost, compared with many less appealing units, and it will add an attractive feature to the area.

Simple but Satisfying

For the nursery and pre-school groups, there are many very realistic and highly satisfying toys that can be produced with ordinary department shop facilities. The one-inch-scale train illustrated has been a greatly appreciated floor and sidewalk toy in the author's neighborhood for several years. With 5/16-inch axles and 2¼-inch brass bushed composition wheels, the trucks are husky enough for long, hard usage. Less substantial details, while adding realism and attractiveness, are not essential; as long as the various cars and the locomotive really look like railroad rolling stock and can be ridden, children never tire of being engineers, brakemen and passengers.

Playing house has been the best loved past-time of little girls for



. . . 1-inch-scale train for nursery groups . . .

. . . a child-size working crane . . .

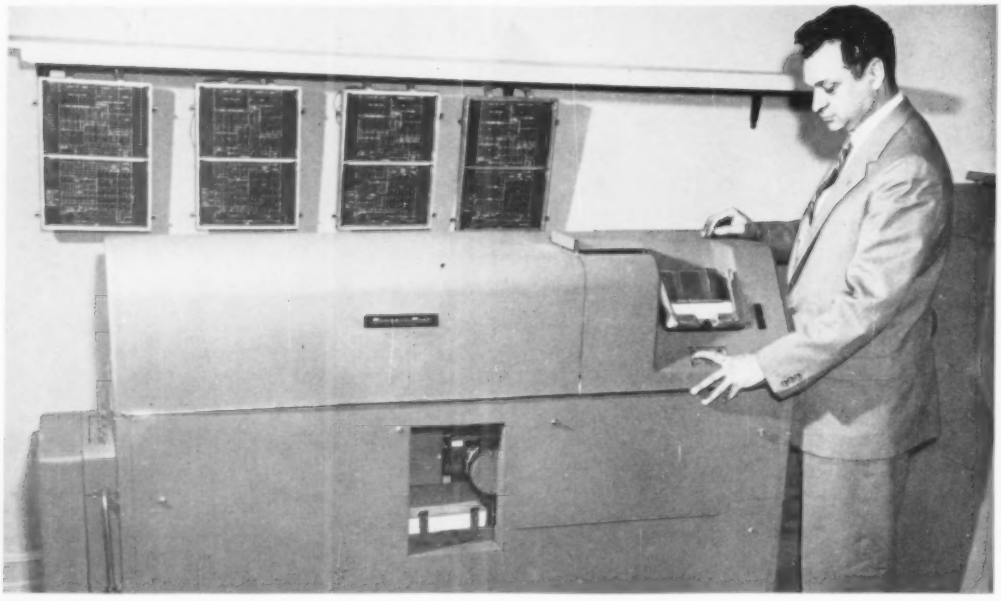
countless ages, and realistic "playhouse" toys meet instant approval. A full line of child-size ⅔-scale household appliances is offered by better department stores but items such as gas ranges, refrigerators, sinks and washing machines are priced at about fifty dollars per unit; however, all of these, as well detailed and even more durable, are easily made at much less cost. A little ingenuity and resourcefulness in devising details will enable mechanics in the maintenance shop to make the appliances, and evening toy-making classes for do-it-yourself fathers, conducted by the recreation department as part of an overall program, could fashion really worthwhile toys.

Made by the dozen in our maintenance shop during the off season, no one piece of play equipment gives so much for so little investment in time and materials as the "artist's" easel shown. The leg assembly is substantially made of ¾- and 1⅛-inch white pine, and has a hinged rear leg for flat storage; the tray, removable for easy cleaning, is partitioned for paint cans and chalk; the 24x36-inch panel is ⅛-inch Masonite, painted with green chalkboard paint for "blackboard" drawing, and has Homosite on the reverse side for thumbtack fastening of paper for water-color painting. It is primarily for indoor use but can easily be carried outside for supervised use. Children spend many contented, instructive hours enjoying these readily made easels.

Further information on materials and construction procedure will be supplied to interested readers, at no cost, by the author.

. . . a pirate's cave. . .

. . . and an artist's easel with a removable tray for easy cleaning and a hinged rear leg that permits folding for flat storage.



Comptroller Bernard Newman at the Remington Rand calculating punch which computes city payrolls.

Punches Push Norwalk, Conn.,

By **BERNARD NEWMAN**
Comptroller

Being comptroller of a city with a capitalization of $300 million is like being the cat on a hot tin roof. It was that way in Norwalk until a year ago. Our department was falling three to four months behind in keeping records of disbursements and encumbrances and we had no way of telling what was happening from one month to the next.

Norwalk is a city of 65,000. Some call it "the fastest growing city in Connecticut." In 1945 the tax assessment evaluation amounted to $80,616,000; in 1958 it was $162,161,000.

Suburbanites like the fact that Norwalk is just 55 minutes from New York's Grand Central Station; the beaches are among the best along the Connecticut shore. For industry, Norwalk is situated on the main line of the New York, New Haven and Hartford Railroad, and on the Connecticut Turnpike and U. S. Route 1, with easy access to other points throughout New England.

Growth of the city has increased the annual budget to almost $11 million for 1959. The budget covers the activities of 29 different departments, and is supervised by the comptroller.

At present there are more than $6 million in investments in the comptroller's name, as well as approximately $1,500,000 in his name in more than 30 checking and savings accounts. In addition, the comptroller is obliged to formulate the budget, make recommendations, advise the Board of Estimate and Taxation in making decisions, advise the Personnel Committee on salary structure, advise the Common Council on capital budget expenditures, make essential purchases, meet payrolls, pay bills, inspect all city property projects and jobs, make all internal audits of expenses and payments other than the annual outside audit.

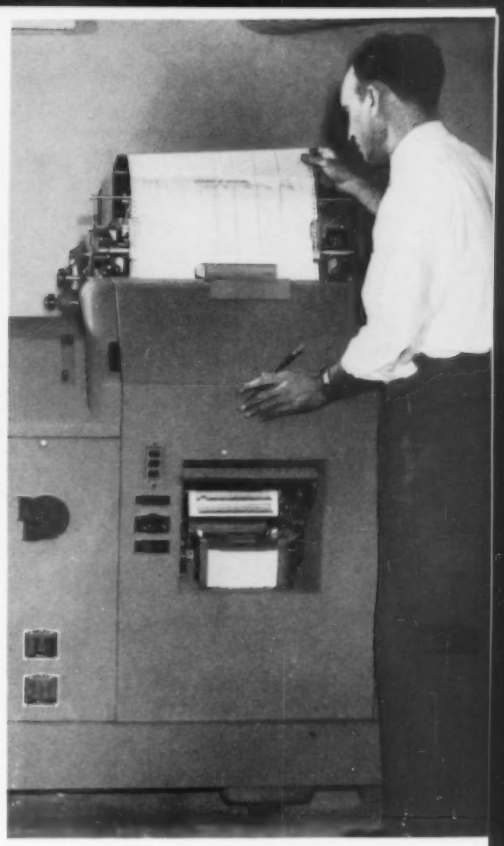
Work Outgrew System

Until recently, the methods used to accomplish this constantly growing network of tasks were the same as those used 15 years ago, when the job was about half what it is today. Although we managed to do the job, we were badly in need of more modern methods. This was particularly true in regard to the accounting of daily disbursements by each of the 29 different departments.

The budget approved by the City Council allows each department to spend a certain amount during every fiscal year. Each purchase order, however, must be approved by the comptroller. This check is designed to give his office a bird's eye picture of exactly (a) how much of the budget actually has been spent by each department, providing an unexpended balance figure; (b) how much, if not actually paid out, is due to be paid out, providing him with an unencumbered balance figure.

Furthermore, the budget for each department is broken down into subcategories. A department is not supposed to draw from one subcategory to cover expenditures in another; the only exception to this is the Board of Education. This prohibition is designed to enable the Board of Estimate and Taxation, as well as the taxpayers, to see exactly what money is going for what purpose. The sub-categories are broken down to expense-categories. Before any department can draw from one expense-category to cover expenditures of another, approval

Punches record information from purchase orders on card.



A purchase order report showing the balance-to-date of each city department is produced on the tabulator at the end of each day.

Four Months Up to Date

must be obtained for it from the comptroller.

Before our present system, we totaled the purchase orders for each department only once a month. They were then subtracted from the previous month's unexpended balance, to determine if the account was overdrawn. Then our bookkeepers found themselves unable to keep up even on a month-to-month basis. They were three to four months behind. The result was:

1. There was no such thing as a record of the unencumbered balance. There was merely a record of an unexpended balance, and thus any purchase order approved by the comptroller might result in an over-withdrawal when purchase orders already out were paid. Departments frequently were over-withdrawing their allowances.

2. There was no report produced showing amounts expended on subcategories. There was merely an overall balance sheet showing the unexpended balance for major categories within each department. Thus, it was impossible to give a report on exactly how much had been spent on exactly what items.

3. Each department kept its own records, and the comptroller's office kept similar records for all of the departments. This was a duplication of effort that was costly as well as inefficient.

After lengthy study of every aspect of this situation, we decided it was to our advantage to install a Remington Rand punched-card system which, among other things, updates totals of all purchase orders on a daily basis, in a matter of a few minutes.

At the beginning of each day a card is punched by expense-and-category for each purchase order that comes into the comptroller's office. At the end of the day the cards are automatically sorted in with the balance-to-date cards. The cards are then put through the tabulator by Louis Iannacone, Tab Supervisor, to automatically provide an up-to-the-minute report for each expense and sub-category on the unencumbered balance, as well as a report on the unexpended balance. If any account is overdrawn, it is indicated automatically.

Summary cards are also punched, containing to-date totals for the year for each sub-category. At the end of the month machine listed reports are sent to the various departments to inform them of their financial position. Advantages of the system are:

1. Accounting records are now up-to-date, enabling the comptroller's office to provide the numerous reports, audits, controls, and studies necessary for efficiency in the appropriations function.

2. Summary reports of expense and sub-categories, never before available, show where each penny of the taxpayer's dollar goes.

3. Centralization of accounting in the comptroller's office has made it possible for each of the 29 departments to eliminate most of their own bookkeeping functions, thus saving money.

A calculating punch is used to prepare monthly payroll checks, indicating withholding tax and social security deductions automatically. The unit is also used by the tax assessor's office, to extend the tax on real property, based on the assessed valuation which is recorded on punched cards. The Remington Rand System has also been applied to the collection of taxes, in multi-district breakdown.

Although located in a remote spot, Melbourne's water plant has a colorful and a pleasing appearance.

We're Ready to Serve Our Suburbs

Melbourne, Fla., builds entirely new water system capable of quick expansion to serve neighboring county area

By **TEVIS HUGUELY**
City Manager

When a city has to build a completely new water utility, from intake pipe to distribution line, its officials have to take a long look at the service the city will have to provide. We faced such a decision four years ago. Except for a small distribution network we had to build an entirely new system. After careful study we decided to make the distribution system capable of serving neighboring towns and surrounding county area, and the plant easily expandable to serve the booming population growth now taking place in many parts of Florida.

A quick look at the statistics might indicate over-extension on our part, but such is not the case. We built a water treatment plant with a capacity of 6 mgd. However, if we add one flocculator, one clarifier and one filter, we jump this capacity to 12 mgd. The intake structure, pumps and plant hydraulic system have all been designed and built to handle 12 mgd. Daily output at present averages around 2 mgd. However, the system is growing at the rate of about 10 customers a day.

The plant, located about ten miles from the city, takes water from Lake Washington which is actually part of the St. Johns River. A 36-inch gravity-fed cast-iron pipe carries water from the intake structure to the raw-water pump well on the shoreline. From here it is pumped another 1,400 feet to the plant through a 24-inch line.

The 128-ton intake structure was precast on the shoreline, partially submerged and floated into position by steel barges, and then sunk into place. It has four intake openings with gates providing a capacity of 12 mgd at low water level. The structure is located about 1,500 feet from the shoreline and stands in nine feet of water.

Pumps

Four Johnston vertical turbine pumps, two rated at 2 mgd and two at 4 mgd at 25-foot head, pump raw water to the treatment plant. The 15-hp and 30-hp, respectively, outdoor type U. S. motors are mounted on the roof slab of the 14x38-foot well. At low water elevation the well contains eight feet of water.

The raw water contains on the average about 200 ppm of color, mostly from tannic acid. This is reduced to about 5 ppm by the treatment process.

Alum and small amounts of carbon are added to the raw water as it enters the flash mixer. It then flows to and through the single Dorrco flocculator. This rectangular unit is 65 feet long and 17 feet wide with an average water depth of 15½ feet. At design capacity of 6 mgd the flocculator provides a 35-minute detention period.

Chlorine and soda ash are added to the water near the effluent end of the flocculator while lime is added at the effluent end of the clarifier. The Dorrco Squarex Clarifier is 80 feet square with a 16-foot side water depth. It also has a capacity of 6 mgd and provides a three-hour detention period and a surface rate of 935 gallons per square foot per day.

Next the water flows through an open channel to the two double filters. These are exterior units each 24 feet by 48 feet in size and rated at two gallons per square foot per minute at 4 mgd. Filter equipment includes Wheeler-type bottoms, Builders-Providence consoles and instruments, Palmer surface washers and Allis-Chalmers butterfly valves. Filtered water enters the clearwells under each filter and a third clearwell from which the high-service pumps take water. These three interconnected tanks have a total capacity of 750,000 gallons.

Chlorination System

Chlorine, purchased in ton containers, is fed to the water through two Builders-Providence chlorinizers and a visible flow feeder. We can add chlorine to the clarifier,

The Florida climate permits open-air construction with only overhead protection needed for the filter controls.

The new and the old elevated tanks in Melbourne together provide a capacity of 650,000 gallons.

clearwells or filters as desired. One machine is rated at 100 pounds a day and the other at 500 pounds a day.

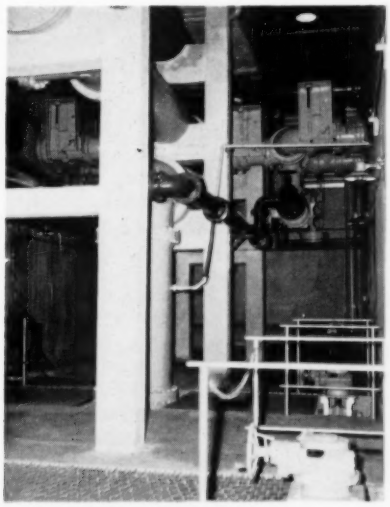
For dry chemicals, we have five Omega gravimetric feeders, one each for alum, lime, soda ash and carbon, plus one spare unit. At present we are experimenting with the addition of sodium silicate between the flash mixer and the flocculator for a better floc, but have reached no conclusion as to the advantage of this chemical.

We now purchase all dry chemicals in bags, but are looking into the matter of bulk purchasing of those used in large quantities as an economy measure.

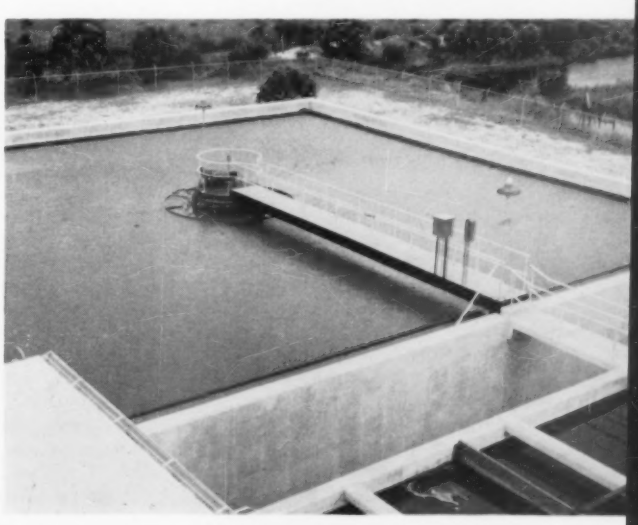
The high-service and wash-water pumps are located within the main building. All are Johnston vertical-turbine units driven by U. S. electric motors. For high service we have two 2-mgd units at 140-foot head driven by 60-hp motors and two 4-mgd units at 225-foot head driven by 200-hp motors. The single 100-hp wash-water pump has a capacity of 6,750 gpm at a head of 37 feet.

The discharge line of each high-service pump contains an Allis-Chalmers hydraulically operated Roto-valve with electric limit switches for excessive pressures, plus an M & H gate valve. The pumps discharge into a single header connected to the transmission main leading to the city.

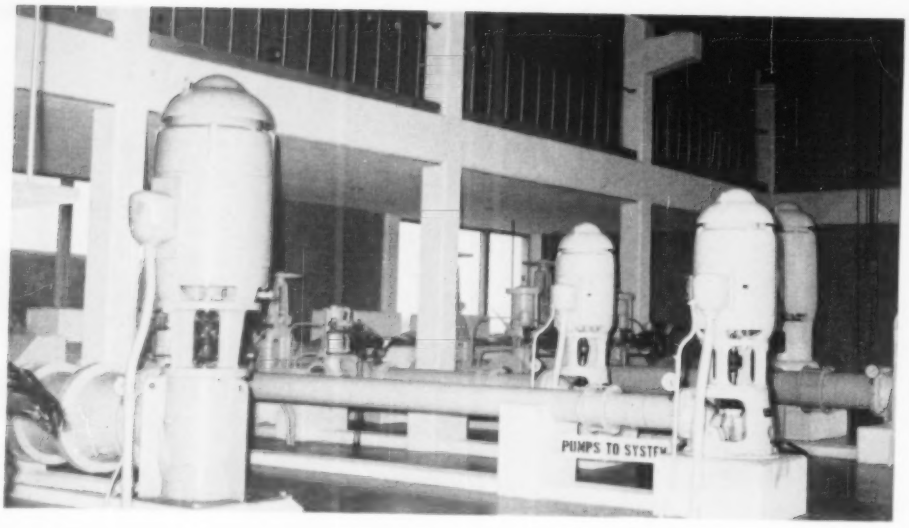
As an added safety feature against excessive pressure or surges in the header three 4-inch lines with Allis-Chalmers angle needle relief valves lead from the header back to the clearwell. Should pressures



This roomy pipe gallery permits easy access to all valves and controls.



The single flocculating chamber (foreground) and the clarifier each have a capacity of 6 mgd.



The staggered arrangement of the high-service and the wash-water pumps permits easy access to pumps and piping. The balcony houses electrical switch gear and instrument panels.

exceed the 120-psi valve setting, the valves open and allow water to return to the clearwell. This action also sounds an alarm warning the operator.

A balcony overlooking the high-service pumps contains the master control panel. Builders-Providence instrumentation includes raw-water and high-service pumpage, water elevation in the various elevated tanks, clearwell depth and other necessary data. Switch gear is by General Electric.

A six-ton Manning, Maxwell & Moore electric operated traveling bridge crane spans the pump room and is used in servicing the equipment.

In case of power failure, a manually started 150-kw Caterpillar generator set takes over. This unit supplies sufficient electric power to operate the plant.

The roomy pipe gallery provides easy access to all valves and piping. The butterfly valves on the clearwell lines all have Philadelphia Gear Works hand-operated Limitorque controls.

Sludge Pumps

Three Weinman vertical-turbine sludge pumps are available to pump sludge from the flocculator and clarifier to a lagoon adjacent to the plant. Ratings are one at 100 gpm at 15-foot head and two at 300 gpm at 15-foot head. Normally sludge is removed by hydraulic head of the water in the tanks, but the pumps are needed when the tanks are being emptied.

To avoid the problem of corrosion we used aluminum throughout the plant for railings, floor gratings and protective metal cages. The plant site consists of 17 acres of man-made land. All buildings and structures rest on Raymond concrete piles.

Wide Area Served

Whereas we formerly served about 1,700 customers we now have some 5,800 customers and this figure is growing at the rate of ten a day. Melbourne, with a population of about 20,000 persons, covers an area of nine square miles. However, the water system presently serves an area of 44 square miles. Cities included in the system are Melbourne, Melbourne Beach and Indialantic. With one exception we serve the individual customer directly. The exception is Eau Gallie, a city to our north. We supply about 100,000 gpd to this city on a wholesale basis and it handles distribution to the consumer.

The minimum monthly rate for Melbourne residents is $2.50 for 3,000 gallons. Consumers elsewhere pay $3. New subdividers must install all mains according to our specifications and these become the property of the utility as soon as water is pumped into the mains.

Elevated storage consists of a 250,000-gallon tank at Indialantic, a 300,000-gallon tank at Canova Beach and two tanks in Melbourne, an old 150,000-gallon tank and a new 500,000-gallon tank. These tanks, all constructed by Pittsburgh-Des Moines, are set at the same elevation and are equipped with Golden-Anderson altitude valves.

In addition to our clearwell, ground storage consists of a 1,500,000-gallon Chicago Bridge & Iron reservoir at Canova Beach and two reservoirs totaling 750,000 gallons in Melbourne. Pumps transfer water from the reservoirs to the elevated tanks. The Melbourne pump station is operated manually while the pump at Canova Beach is an automatic one. The latter station also has a generator unit that takes over in case of electric power failure.

Starting almost from scratch has given us an opportunity to standardize on certain items. These include Badger and Buffalo meters, M & H valves and hydrants and U. S. Tyton Joint pipe for the distribution system. For river crossing we used American Molox Ball Joint pipe. In addition to the approximately ten miles of transmission line, we installed about 211,000 feet of mains. A second transmission line from the plant to the city via a different route is planned for the future.

The entire program, designed and supervised by Alfred Le Feber & Associates, consulting engineers, of Cincinnati, Ohio, comprised seven basic contracts and cost approximately $6,750,000. This was financed by means of a $6¾ million revenue bond issue. The contracts included one for the plant, one for the transmission main, two for distribution mains, one for the pump station at Canova Beach and two for the elevated tanks and reservoir.

Work started in July 1957 and the plant went into service in March of 1959. Formal dedication ceremonies were held on June 4, 1959.

All operations are under the direction of Thomas S. Graham, Superintendent of the Water Department.

This big ice rink, with a total ice surface 85 x 225 feet, is one of the most popular features of the Lincoln Center, a recreation area given to the city of Columbus, Ind., by the Hamilton Foundation, incorporated.

Columbusites Love To Ice Skate

The residents of Columbus, Ind., love to ice skate. During the 1958-59 season, from Christmas Day through March 8, 33,795 admissions were reported in the new Lincoln Center Ice Rink in this city of approximately 20,000 people. An even larger attendance is expected this season.

The Center has two rinks, one measuring 85x185 feet and the other 85x40 feet. Each is separately controlled so that ice can be formed on one without freezing the other. However, when advisable, partitions between the two areas can be removed to create an ice surface 85 by 225 feet, one of the largest in the country.

Design

The Center also includes a community building, courts for various games, and parking facilities. The over-all design was prepared by Harry Weese and Associates, Chicago. Eeltz Engineering Laboratories, Detroit, designed and installed the ice rink and refrigerating equipment.

More than 12 miles of National Supply "Spang" steel pipe carry the refrigerant to every part of the two rinks. Pipe for the grid is of 1¼-inch diameter and is laid on 3½-inch centers. It was ordered in double random lengths, about 40 feet each, which reduced the installation time and required only about half the number of couplings, compared with standard random length pipe, which is about 20 feet long.

For the 1958-59 season, water was sprayed directly over the grid pipe to form ice. Inspection at the end of the season showed that the pipe was holding up perfectly, so concrete was poured on it to form the base of the ice in the future. During the summer months, the concrete provides a good surface for games such as tether ball and badminton and for recreation activities such as dancing and roller skating.

The refrigeration equipment consists of three Beltemp B-60 Icemakers, each having a 100-horsepower motor driving six 7-cylinder radial compressors. Instead of brine, the rink uses a newly developed anti-freeze solution, with a neutralizer. Three 20-horsepower pumps circulate the solution through the feeder lines to the grid pipe. The ice is usually maintained at about zero F, although the equipment can regulate the temperature and provide varying degrees of surface hardness.

The rink is operated from November through March. Children 17 years old or younger can skate free on Tuesday afternoons and Saturday mornings and for 25 cents at other times. Adult admission is 50 cents. The admission fees and income from skate rental, a snack bar, etc., are used to defray operating costs.

Lincoln Center is a gift to the city by the Hamilton Foundation, established by the late B. F. Hamilton of this city.

Athen's new chipper (above) makes fast work of this brush pile. Formerly property owners had to burn it or haul it themselves.

Even the fire department is happy with this leaf collector for it eliminates the fires and annoying smoke prevalent in the fall.

Two Mechanized Ambassadors Of Good-Will

Athens, Ga., acquires two pieces of modern equipment and wins friends for the city government

By **B. E. LUMPKIN***
Supervisor

Two pieces of equipment, a leaf scavenger and a limb-and-brush chipper, have more than paid for themselves in good public relations alone. As Mayor Ralph M. Snow puts it, never have the people been so impressed or commented so favorably on city equipment as they have on these two items. They are without a doubt the two most popular pieces of capital equipment ever purchased by the city.

The cause of all this praise is a new service provided to the people by the city—that of picking up all leaves and brush placed along the street or curb line. Before purchasing the equipment, the only leaves we moved were those that accumulated in the street and were picked up by the sweepers, plus small amounts placed in garbage

* Mr. Lumpkin has supervised the Athens Sanitary Department for the past 25 years.

It only takes the leaf collector about 12 minutes to pick up these two loads of sweepings. It does a clean job, eliminating final hand-broom clean-up.

cans. The only brush we moved had to be small enough to go into the garbage cans also.

Although both units were delivered last spring, the Asplundh chipper saw the greatest service during the late spring and summer months. However, the Good Roads leaf collector, mounted on a Dodge truck, really came into its own once the leaves started to fall.

The chipper not only saves time in brush collecting but also in hauling the material to the disposal site. The two men working the unit can do a full day's work without making a single trip to the disposal site during the day. We dump the chips at our landfill site or burn them in our incinerator.

Last April the machine proved its worth by making quick work of all but the largest limbs of a giant oak that toppled onto a residential street. Again in July, when the south section of the city was hit with a wind storm, the chipper halved the time normally required for the clean-up operation. Chipper activity increased during the summer and early fall for, with the new service, our people became more aware of brush, especially between the sidewalks and curbs, and they went to work on it.

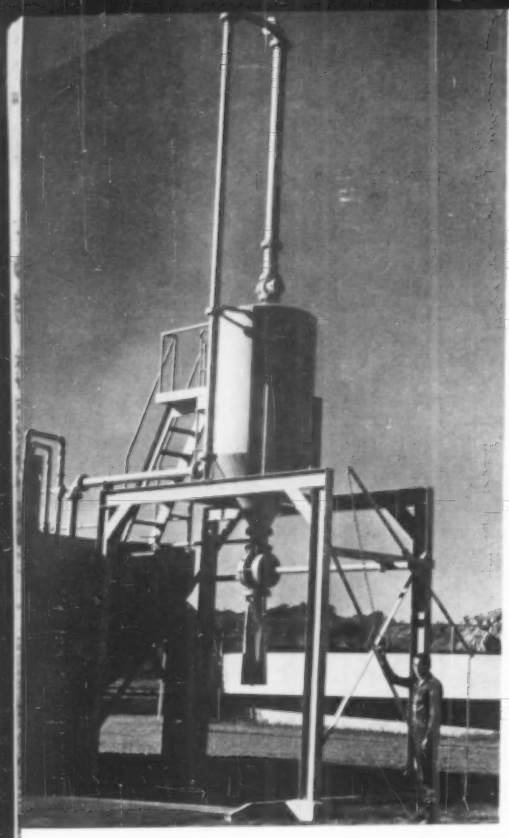
Reduced Fire Hazard

With hundreds of shady oaks, magnolias and elms, fall meant annoying smoke and often uncontrollable fires. Instead of raking the leaves into large piles and burning them, homeowners now sweep them to the curb line and the city does the rest.

A two-man crew also operates the leaf collector. One man drives the truck while the second man controls the suction hose from his seat near the rear of the truck. The controls resemble a bicycle handlebar. A buzzer system permits the rear man to signal the truck driver when he is ready to move on to another pile of leaves. Leaves go to the city landfill site.

The leaf collector also comes in handy in our street cleaning work. We have two three-yard Wayne motor sweepers that work within the business district each night and in the residential section once a week. In the past, sweepers hauled all their loads to the landfill and still do when sweeping close by. Now, when working further away, they dump their load on a nearby side street and immediately go back to sweeping. The leaf scavenger, which holds two full sweeper loads, picks these up and hauls them to the landfill. The leaf scavenger is more mobile than the sweepers; so the time saved by using this method allows us to sweep a great many more curb miles. The scavenger can pick up two sweeper dumps in about 12 minutes, which is much faster than any other method I know of. Also, it picks up all of the fine dust left behind by other methods.

The brush chipper and leaf collector are maintained and operated by the street cleaning division of the Sanitary Department. Each unit is operated eight hours per day and forms part of our regular service designed to make Athens one of the cleanest cities in the country.



Lakeland's "Aer-Degritter" uses effluent water for pressure to lift grit from twin hoppers to this closed container.

Lakeland, Fla., Uses New Degritter

"Aer-Degritter" uses plant effluent water to lift settled grit to a closed container in a $2,200,000 sewage plant addition

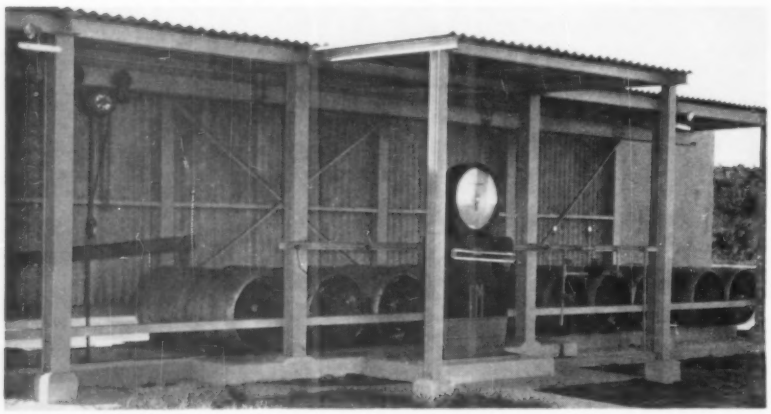
By **B. F. JARRELL**, Administrative Assistant*

Lakeland, long one of Florida's pioneer cities in sewage purification, recently has completed a $2,200,000 addition to its plant facilities that features an unusual mechanical sanitary-sewage degritter. Believed to be one of the most odor-free, nuisance-free methods yet devised, the unit was designed by Reynolds, Smith and Hills, Jacksonville engineers. The Lakeland installation is one of the first applications of this important new innovation.

The "Aer-Degritter" uses plant effluent to provide pressure for lifting settled grit in slurry form from twin hoppers to a closed container for additional settling, temporary storage and further washing with plant effluent.

All raw sewage is pumped to the "Aer-Degritter," which is designed to handle an average flow of 9 mgd, 3 mgd more than the flow of the present old and new plants. The unit employs air for grit settlement with only minor entrapment of putrescible organic matter.

Settled grit is transferred from the twin hoppers to the container by means of a sand and mud eductor, suspended at either end of the air-diffusion header. The closed container which receives the grit-bearing slurry has a conical bottom and dished top. Grit settles in the conical portion after additional washing with plant effluent to separate organic materials further; then the waste liquid is returned for resettling in the "Aer-Degritter" tank.



Chlorine handling is expedited in this shed, equipped with a Wright beam-type hoist and a Fairbanks-Morse scale. The gas is piped to the lab building.

Discharge

Settled and washed grit from the closed vessel is periodically discharged from the conical bottom through an eight-inch, round-port plug valve, and it is hauled away by truck to a nearby sanitary landfill.

The addition to the Lakeland

* Mr. Jarrell has served Lakeland as administrative assistant to the city manager and as public relations director for 2½ years. Before his city appointment, he was a newspaper reporter covering municipal affairs.

The "business end" of the new facility occupies only a small part of the total area allocated to the treatment plant. New expansions will take place to the left.

sewage treatment plant provides a design capacity of 3,000,000 gallons per day, bringing the total current capacity to 6,000,000 gallons. It was planned so that three parallel similar additions may be constructed for a future 12-mgd treatment volume.

The new plant, the first phase of a three-phase expansion program, is a high-rate trickling filter system employing comminution of sewage solids, grit removal, primary sedimentation, biological filters, secondary sedimentation and aeration, pre- and post-chlorination, separate digestion of sewage solids and, after normal "complete treatment," a "polishing pond" for future purification of effluent before discharge into a canal leading to Banana Lake.

In 1926, when the original Lakeland treatment plant was constructed, the city was one of three in Florida with modern plants. The Lakeland plant was by far the largest, with a 30,000-population design load. New facilities provide a system adequate for a population of 60,000 persons.

Inlet, outlet and pumping facilities constructed under this phase will serve successive stages of a master sewer plan that was adopted in 1956.

Construction under Phase II of the master plan has already been started and portions of a 48-inch trunk line have been installed. This trunk will serve 120,000 people; the present population is estimated at 44,000 persons, with a total urban figure of 59,730, but the size of the trunk line was justified by the explosive growth of the city since 1950. The suburban population has grown 213% since that year and the total urban population is up some 148%.

Approach to the Lakeland plant area has been "dressed up." New portions of the plant are at right; the original plant is in the far left background.

The installed capacity of the Worthington comminutors is 16 mgd. Following comminution, all sewage is metered by Sparling meters at the influent Parshall flume. The influent pumping station has an installed capacity of 18 mgd and Fairbanks-Morse pumps were selected so that the capacity could be increased to 24 mgd, if and when future needs justify it. The station can handle the next incremental expansion without major modification.

The Figures

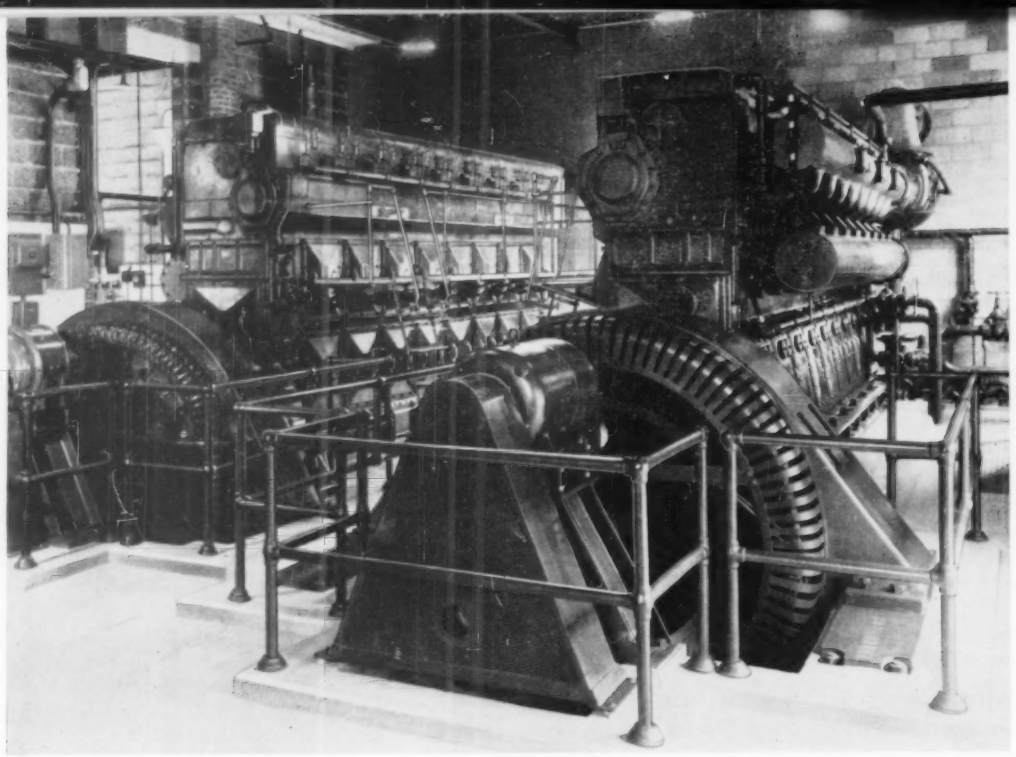
The Dorrco primary clarifiers are 85 feet in diameter and the high-rate trickling filter is 145 feet in diameter. The filter medium is two-inch to four-inch Carolina granite. The 85-foot-diameter secondary clarifier was designed with a fairly high rate of flow to permit gravity flow to the somewhat distant, 22-acre sewage polishing pond.

In the bio-filtration process, a gravity-flow sewage-recirculation system provides a 0.5 : 1.0 ratio of return through the primary clarifier and a 0.5 : 1.0 ratio of return flow through the trickling filter, thus achieving a total recirculation ratio of 1.0 : 1.0 for the plant.

The two new 85-foot-diameter digesters are open, unheated units that have proved practical and economical in Florida's high average temperature.

Wemco sludge pumps were installed for recirculation of sludge in the digesters. Scum formation is controlled by over-the-top tangential discharge and recirculation. A large portion of the digested sludge is transported by tank truck and used in wet form by agriculture.

The entire Lakeland program of sanitary sewage collection and purification has been financed by pledging sewer revenue only. Rate charges are just $2 a month for single-family residences. When Phase II of the program is completed, it will bring sewer service to 95% of the city's total population and will serve 88% of the available land area.



Although they look alike, the engine-generator set on the right produces more than twice as much power as the one on the left—1,250 kw to 600 kw.

From One Engine's Savings

Building-block power plan pays dividends as demand for more electricity grows

By **L. W. MARPLE**
Superintendent
Electric Light Plant
Woodsfield, Ohio

Facilities for future growth, incorporated in Woodsfield's first power plant constructed in 1922, still pay off in operating and remodeling economies. Our "building-block" plan permits many combinations between 200 kw and 2485 kw, enabling us to match generating equipment as closely as possible to power demands to keep engines operating within their most efficient range. In remodeling or increasing plant capacity, we save by mounting, in most cases, the new power sources on the same blocks as the old or utilizing spots previously allotted in the 1922 master plan.

As the city grew and peak demand exceeded plant capacity, new higher-rated equipment replaced the old. This happened in 1934, 1945 and 1948. Two years later, with signs pointing to still greater future growth, we decided to purchase a large engine-generator set capable of handling peak loads for several years. This unit, a Superior 80-GDS-8 dual fuel engine with an Elliot generator turned out to be the station workhorse that in seven years saved us sufficient money to improve our electrical system and also purchase a new and larger unit.

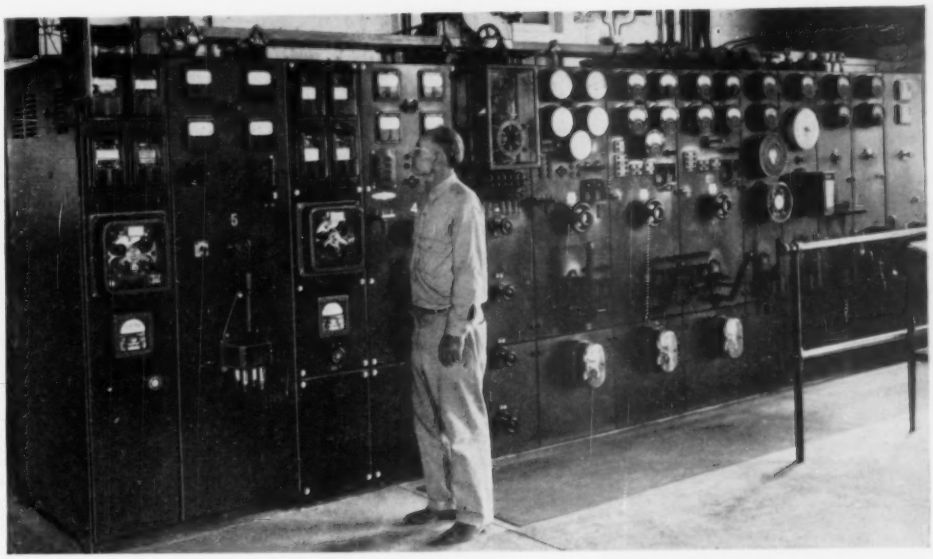
This engine develops the same horsepower on either natural gas or fuel oil, and the set is capable of producing 600 kw. From the time it was installed in December of 1950 to late 1957 this set in most cases carried the entire load from 9 a.m. to 11 p.m. while our two 200 kw units handled the night load which averaged 170 kw.

This ended the old problem of voltage drop when industrial plants came on the line, and at the same time we were saving money.

With gas purchased at 37 cents per 1,000 cubic feet, the dual-fuel engine operated at about 4.8 mills per kw under 3/5 load, whereas the previous full diesels ran at 9.5 mills per kw under ¾ load. Thus the new engine operated at half the cost of the older units.

These savings allowed us to build up our capital reserve, and in 1957 we added another Superior dual-fuel set, this one an 80-GDSX-8 (supercharged) producing 1250 kw.

Besides setting up an enviable cost record, the 600-kw unit averaged better than 50,000 hp hours per gallon of lube oil and ran up a total of 44,000 hours without an overhaul. In February 1958, after placing the



Author Marple checks instruments on the plant switchboard used to control the five engine-generator sets.

— Buy Another

new unit into service, we tore down the "workhorse" and examined all parts. Only the connecting rod bearings required replacement but we also changed the piston rings. They showed only 0.002-inch wear, which was well within allowable tolerances.

Woodsfield's electric rates are scaled to consumption—4½ cents per kw for the first 50 kw; 4 cents per kw for the next 100 kw; 3½ cents per kw for the next 150 kw; 3 cents per kw for the next 1,700 kw; and 2½ cents per kw for everything over 2,000 kw. This rate was established in March 1956. Prior to that time we operated on a flat rate of 4½ cents per kw. Thus our rate structure also reflects savings resulting from the more economical engines.

These rates are somewhat deceiving in that there is no charge for power used by the municipality for water pumping, street lighting and similar services. About one-third of the plant's power production is used by the municipality. Under a private company operation, this arrangement of "free" service would not be available.

We started out with two 130-kw units in 1922 and added a 235-kw engine generator set in 1935. In 1945 and 1947 the original 130-kw units were replaced with full diesels and generators of 200-kw capacity. Then followed the two dual-fuel units as described.

Until 1957, Woodsfield's growth was rather slow, but steady and predictable. However, in that year the growth surge came, and from 1957 to 1959 our population expanded more than it did during the previous 25 years—from about 2,500 in 1957 to 3,200 today. Aluminum was the cause.

Ormet, a 180,000-ton smelter—built to produce aluminum for its co-owners, Olin Mathieson Chemical Corp. and Revere Copper & Brass—began construction in Clarington, Ohio, in 1957. Clarington is on the Ohio River just 18 miles east of Woodsfield and since Woodsfield was already an established community it soon became the residential headquarters for Ormet personnel. As Ormet's production expanded, so did its operating staff, and so did Woodsfield.

Power consumption increased along with our growth in population. Power consumption amounted to 2,921,740 kw in 1956; 3,444,360 kw in 1957; and 4,167,260 in 1958. The 1959 production showed a similar increase.

We now have 1,195 metered customers of which 1,050 are residential. The home-building program, partially sponsored by Ormet's owners, continues to increase this figure.

Fortunately, far-sighted planning 37 years ago, a "building-block" power plan and sound operating and maintenance procedure has helped us keep pace with this growth.

Head linesman Ellis Smithberger spends much of his time supervising distribution system extensions to serve the growing community.

Birmingham's double-surface treatment paving put an end to high maintenance costs and constant complaints of dust and mud. After more than two years of service, this street is still in excellent shape.

Birmingham, Ala., reduces street maintenance costs and licks the dust, mud and pothole problem with . . .

Paving Most People Can Afford

By **NEAL McRAE**
Street Superintendent

After years of waging an almost losing battle against dust, mud and potholes on our many miles of unpaved streets, we finally adopted a low-cost paving program. Although limited in its application and unproved in Birmingham, we felt such a program was worth a try and, after three years of work and 56 miles of such pavement to our credit, we are convinced that our early convictions were sound.

In September of 1956, after we decided to use what is commonly known as double-surface treatment paving, the City Commission appropriated money to purchase about $56,000 worth of equipment and establish two crews to begin work in the spring of 1957. The equipment purchased consists of:

Eight medium sized International trucks equipped with dump bodies.

Eight Etnyre asphalt distributors mounted on heavy-duty International chassis.

Eight Sawyer spreader boxes.

Two 8- to 10-ton Galion rollers.

One Ford pick-up truck.

In addition to the above, we had two Caterpillar motor graders already in the street department.

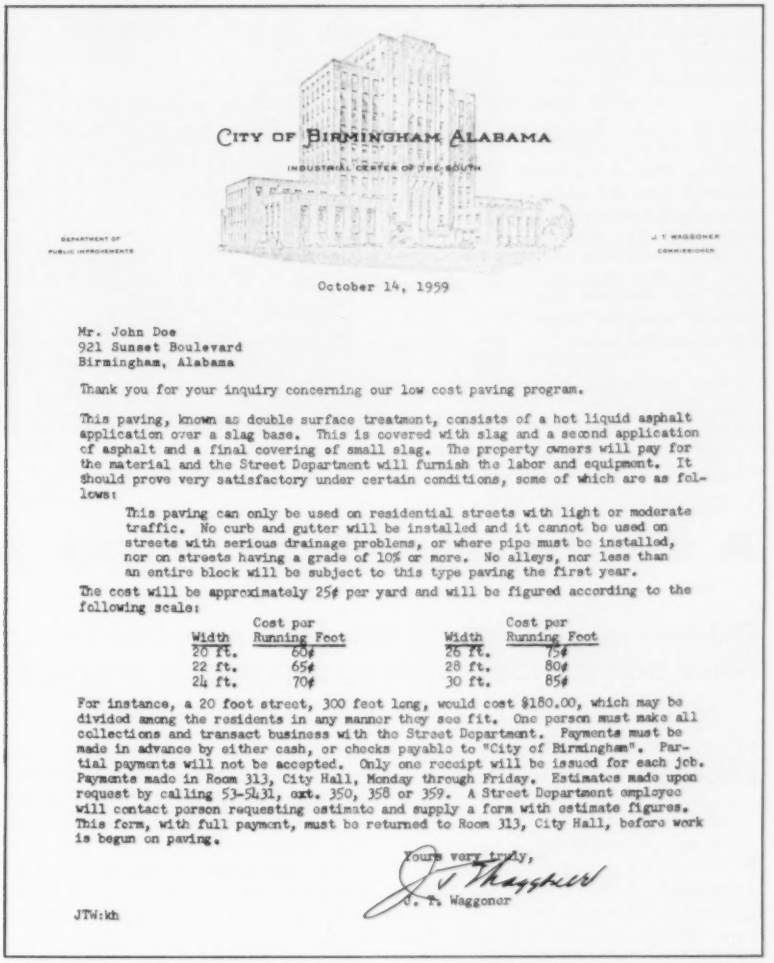
Before describing the paving procedure, let me stress that this paving can only be put on a road bed that is thoroughly compacted by years of use. Fortunately, we have had an ample supply of blast furnace slag which we used on our unpaved streets for many years. This furnishes an excellent base provided we do not try to widen the existing road bed.

First, the motor graders scarify and blade the existing road surface to uniform contour and give it a crown of ¼-inch per foot. The two-wheel power roller then takes over until the sub-grade is hard, firm and free from depressions. Should rolling develop soft spots or depressions, these are built up with successive layers of coarse stone, choked with screenings, and rolled until firm.

Next the surface is covered with 1½-inch to ¾-inch stone, using 35 to 40 pounds per square yard, and treated with an application of emulsified asphalt Grade EA5. We heat the asphalt to 140°F and apply from 0.6 to 0.7 gallons per square yard. The surface is then covered with a 1⅛-inch to ¼-inch stone, using only enough to fill the voids in the coarse slag and barely covering the asphalt application.

The seal coat consists of emulsified asphalt applied at the rate of 0.2 to 0.3 gallons per square yard covered with 16 to 20 pounds of stone chips per square yard.

In this type of construction it is necessary to compact the coarse aggregate before applying the binder. It should be dry-rolled and, when compact, should be tested to make sure the surface is



CITY OF BIRMINGHAM ALABAMA

INDUSTRIAL CENTER OF THE SOUTH

DEPARTMENT OF PUBLIC IMPROVEMENTS

J. T. WAGGONER, COMMISSIONER

October 14, 1959

Mr. John Doe
921 Sunset Boulevard
Birmingham, Alabama

Thank you for your inquiry concerning our low cost paving program.

This paving, known as double surface treatment, consists of a hot liquid asphalt application over a slag base. This is covered with slag and a second application of asphalt and a final covering of small slag. The property owners will pay for the material and the Street Department will furnish the labor and equipment. It should prove very satisfactory under certain conditions, some of which are as follows:

This paving can only be used on residential streets with light or moderate traffic. No curb and gutter will be installed and it cannot be used on streets with serious drainage problems, or where pipe must be installed, nor on streets having a grade of 10% or more. No alleys, nor less than an entire block will be subject to this type paving the first year.

The cost will be approximately 25¢ per yard and will be figured according to the following scale:

Width	Cost per Running Foot	Width	Cost per Running Foot
20 ft.	60¢	26 ft.	75¢
22 ft.	65¢	28 ft.	80¢
24 ft.	70¢	30 ft.	85¢

For instance, a 20 foot street, 300 feet long, would cost $180.00, which may be divided among the residents in any manner they see fit. One person must make all collections and transact business with the Street Department. Payments must be made in advance by either cash, or checks payable to "City of Birmingham". Partial payments will not be accepted. Only one receipt will be issued for each job. Payments made in Room 313, City Hall, Monday through Friday. Estimates made upon request by calling 53-5431, ext. 350, 358 or 359. A Street Department employee will contact person requesting estimate and supply a form with estimate figures. This form, with full payment, must be returned to Room 313, City Hall, before work is begun on paving.

Yours very truly,

J. T. Waggoner

JTW:kh

This type of letter explaining the program is sent to all interested residents.

firm and even and presents a texture which allows uniform penetration of the asphalt. However, one should take caution to prevent crushing the stone fragments by over-rolling. After applying the first coat of asphalt and partially filling the surface voids with key rock, the entire surface is again rolled with the simultaneous application of additional quantities of key rock broomed over the surface until the surface voids between the coarse aggregate fragments have been filled. Rolling also follows the second application of asphalt and stone cover.

We do not roll at speeds of more than 3 mph, starting longitudinally at the sides and working toward the center of the pavement, overlapping on successive trips by at least ½ the width of the rear wheel. Also, we moisten the roller wheels with either oil or water, taking care not to use an excess of either.

This type of paving takes approximately 100 pounds of aggregate and one gallon of asphalt per square yard. Materials, purchased on a bid basis, cost the city $0.106 per gallon for emulsified asphalt and $1.60 per ton for slag locally f.o.b. our trucks. Thus material costs come to $0.186 per square yard.

We decided to charge residents on the streets so paved 25 cents per square yard to cover material costs plus some incidental expense, and have the city through the Street Department furnish labor and equipment.

Each crew consists of one foreman, one patrol operator, one roller operator, a distributor operator, four truck drivers and six laborers. Wages amount to $150 per day per crew and each crew averages 1,900 square yards per day, making the cost of labor 8 cents per square yard. We add another 3 cents per square yard to cover operation and depreciation of equipment, thus bringing the Street Department cost to 11 cents per square yard.

Shown here is the letter we send to residents who make inquiries regarding the paving program. It explains the type of paving, its limitations, cost and the details concerning application and method of payment.

The program has proven very popular and successful. We used two crews for the first two years, but cut this down to one crew in the summer of 1959 as we have become more efficient and the demand is less than when we started.

Not only have we gotten our people out of the dust, mud and potholes, but we have reduced our maintenance costs to the point where we have already saved enough money to pay for the original equipment outlay.

We recommend this program to any city with unpaved-street problems.

Oshkosh uses an abrasive mixed with salt for ice control. The conical-shaped distribution pattern of this spreader does an effective job without spraying moving or parked cars.

A Snow-Fighting Plan Is Essential

Oshkosh, Wis., meets the critical test of freezing rain, heavy snow and six-foot drifts by a practical organization plan

By **IVAR VAN AKKEREN**
Director of Public Works

There's no room for complacency in the snow fighting business, and the winter of 1958-59 proved that to all in the Oshkosh, Wis., area. Before February 10th we had only one five-inch snow fall and several of one or two inches deep. Judging from recent winters, it looked as though we would get through another season with only minor snow falls.

But on February 10th a second five-inch fall descended upon the city, followed by nine inches of wet snow on February 23. The nine-inch fall started as rain, adding to our troubles. On March 5th the worst storm of the season blew in another 13 inches, with heavy drifting up to six feet in some sections of the city.

Relying on well-established patterns of operation, we were able to keep 137 miles of our 144 miles of streets open generally throughout the storms. This was done mainly with the average-size one-way and wing plows, but we did rent a V-plow to handle several miles of drifts five to six feet deep.

Our plows usually do not go out until about three inches of snow have fallen. Light snows and ice are handled by applying a mixture of grit and salt to the heavily traveled streets, busy intersections and similar areas. The grit consists of crushed limestone, passing a 7/16-inch screen, to which we add from 100 to 200 pounds of salt per cubic yard, depending on weather conditions. We feel that with present-day traffic volumes and speeds an abrasive is necesary, especially at

On wide streets, graders windrow the snow to the center of the street for later removal.

Under good conditions this conveyor can fill the eight-yard snow boxes in 1 to 1½ minutes.

temperatures below 10°, when salt alone is not very effective.

Our new spreader is the best one I have seen so far and several more will be acquired. Manufactured by the Fox River Tractor Company of Appleton, Wis., the unit carries 4½ yards of grit and is one-man operated; larger units are available. It is cab-controlled and does a very good job of distribution without throwing the material against moving traffic or parked cars. Another advantage is that it can be easily installed on a regular dump-body truck in a matter of minutes. However, during winter ours remains on the truck, loaded and ready for action at all times. The same truck is equipped with a snow plow and is used in our snow-plowing operations as are all our other trucks.

Streets are plowed in accordance with their importance for handling traffic, public transportation, fire and police protection and accessibility to the hospital. All is done according to plan as marked on city maps prepared for this purpose. Generally we work from the city limits toward the centers of business when plowing is started during business hours and reverse the procedure by working from the business centers out to the city limits if plowing starts at other hours.

To do this work we have 14 truck-mounted plows and four motor graders. Snow removal takes place in the business sections first, then in parking lots and finally isolated areas. This work is usually carried on at night when traffic and the parked-car problem is minimized. On wide streets we windrow the snow to the center of the street and on narrow streets, to one side. For removal we use a Barber-Greene conveyor loader.

City trucks are of the 2- to 2½-ton size with wooden built-up side walls and latched tail-gate for dumping. These snow boxes average about 8 yards in capacity and, under good conditions, can be loaded in 1 to 1½ minutes.

In the event of unusual snowfalls, we can readily obtain more equipment from local contractors and equipment dealers.

The spirit of the men is an important factor in work of this kind. Any job can be well done when performed on a plan based on service. Ours has worked well under some rather trying circumstances.

Municipal Public Relations — 1960 Technique

Cincinnati Progress
Autumn Issue
HEAVY HANGS THE BUCKEYE
PROGRESS REPORT OF THE CITY MANAGER TO THE COUNCIL AND INTERESTED CITIZENS

Cincinnati's news magazine starts its Volume 7 this year. It is one of the several links between City Hall and the people of metropolitan Cincinnati. The year-end issue carries the annual report.

Bulletin
Gas Tax Finances Improvement Projects
Second Year Budget: No Property Tax
School Playgrounds Open Each Day
ANNUAL REPORT AVAILABLE

Pico Rivera's breezy, fast-reading "Bulletin" appears in four pages and goes out bi-monthly to the citizens.

Cincinnati Milestone

Six years on television would be quite a record for any performer. It's especially noteworthy when the "entertainment" is a program on city government and the performer is a city manager.

But this is the record chalked up by "The City Manager Reports," a 15-minute, mid-day, every-Sunday television appearance by C. A. Harrell. TV spotlights have become almost as familiar to Manager Harrell as the more routine trappings of his office at city hall. The program is now in its sixth straight year. It has been telecast by WLW-TV since May 1954 and has been broadcast in color since September 1957.

Mr. Harrell answers questions written in to him by citizens. Dan Steible, executive assistant to the manager, is his right hand for this program as well as in all the other public relations activities in Cincinnati.

Another tried-and-approved PR activity of Manager Harrell and Mr. Steible is a quarterly, "Progress Report of the City Manager to the Council and Interested Citizens." This offset news magazine covers city operations in text and picture. It, like the TV program, has been in business for six years, now begins a seventh.

California Newsletter

When Pico Rivera, Calif. (population 52,000) marks its second anniversary on January 29, its citizens should know plenty about their two-year-old community. One of the first projects—after actual administrative machinery was set up—was the preparation and distribution of a citizen-information "Bulletin."

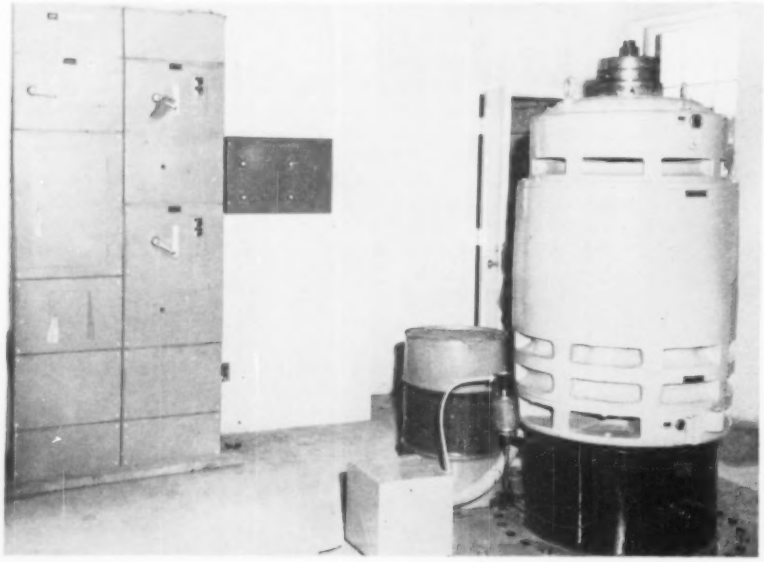
The "Bulletin" not only contains seasonal news of municipal activity, it also is a primer of city government. One article, for example, summarizes city services performed by each municipal department. Another describes the council-manager form of government which voters adopted. The publication also invites citizen inquiries on—for example—parks and recreation in a mid-summer edition, and tells people where to call for answers.

The four-page bulletin is printed in brown ink on good weight beige paper. It is a self-mailer sent to householders bi-monthly. It serves as a supplement to the annual report.

Radial gates similar to these will be constructed across the Milk River at the low-lift pump station.

Two urban counties set up a single special drainage board to handle the problem of increased storm-water run-off and . . .

Provide Drainage Before Floods Occur



Inside of the low-lift pump station showing one of two pumps used to promote flushing of the Mill River Drain. Buttons on the wall control the radial gates.

In a step rather unusual for Michigan, the drain commissions of Macomb and Wayne counties set up a special drainage board or authority to plan proper drainage for both areas. The overall project, which was started in September 1958, will cost about $6,500,000.

Rapid growth in Grosse Pointe and surrounding areas presents fresh opportunities for homebuilders—and problems for the engineers. In recent years numerous small homes replaced many of the great estates along Lake Shore Drive on Lake St. Clair, and other developments are in the making as more estates are being broken up. In addition old fields in the area are being transformed into completed residential subdivisions. This changeover from open fields to paved streets and sidewalks and acres of roof area drastically increased the amount of water run-off. Drainage became a problem, for all the land is low and flat with little natural slope. Much of it was marshland until only a few years ago.

This area is drained by the sluggish, sometimes stagnant, Milk River, which is aided by a sewer system adequate only for the earlier days of scattered mansions.

Flooding has not yet become a problem; however, filling in of the lake by the St. Clair River delta,

The pipe line, 72 inches in diameter, will carry stagnant water from the drain to Lake St. Clair, discharging it about 700 feet from the shore.

coupled with increased runoff, could alter this situation in the future. Recognizing this, the two counties concerned took action to prevent such an occurrence from ever taking place.

Two-Part Project

The new Milk River Drain, although designed primarily for storm water use, will carry a small quantity of sanitary sewage during storm periods. Under normal dry weather conditions, all sanitary flow discharges into the Wayne County Interceptor System which in turn carries it to the Detroit sewage treatment plant.

The project consists of two principal parts:

a) a main pumping station with skimming and settling basins, located about ¾ mile upstream from the mouth of the meandering river, and

b) a low-lift pumping station located half a mile downstream from that point plus 2500 feet of outfall sewer.

The outfall sewer consists of 72-inch-diameter Armco Smooth-Flo pipe, with about 700 feet of the line extending into Lake St. Clair. With an average water depth of 1½ feet and the deepest portion only 3½ feet, workmen and equipment simply "waded in" to lay the pipe, building a clay cofferdam for each section as the line progressed. The line follows the natural contour of the lake bottom and lies in an 8-foot trench—with the top of the pipe about one foot below the lake bottom. The end of the outfall was covered with a screen and anchored with concrete.

Construction proceeded into the winter months, and at times the shallow portion of the lake froze to the bottom, creating a natural cofferdam. The bottom itself is hard clay.

The lower channel of the Milk River, below the low-lift station, is being cleared and straightened. This area will be converted into a new marina to provide dockage for hundreds of small boats. There is a swimming pool near the river mouth. Thus the pipe installation serves to help make possible an important addition to public recreational facilities and to restore this lower channel as an attractive stream for the public to again enjoy.

The section of river lying between the two pumping stations will not become stagnant because of an unusual flushing system controlled by four Armco radial gates at the low-lift station. Periodically these 18x7-foot gates will be closed and that portion of the river between the two stations will be pumped dry, with the water being carried to Lake St. Clair by the outfall sewer. The gates will then be opened to permit fresh water from the lake to surge back through the lower part of the river in a flushing action. This system will diminish, if not eliminate, the undesirable condition caused by stagnant water in the Milk River Drain.

In addition to the radial gates, the site will also include four other Armco gates—two Model 20-00 slide gates and two Model 10 C flap gates.

Pumping Equipment

Pumping equipment at the low lift station includes two Fairbanks-Morse units rated at 2,500 gpm each. The main station, also equipped with Fairbanks-Morse pumps and motors, contains three storm-water pumps rated at 410 cfs each, four storm-water pumps of 275 cfs capacity each, and three 5,000-gpm-capacity sanitary sewage pumps. Pumping head is approximately 32 to 35 feet for storm water and 36 to 40 feet for sanitary sewage.

Stanley Quackenbush, chairman; Henry V. Herrick, Wayne County Drain Commissioner; and Frank E. Lohr, Macomb County Drain Commissioner comprise the three man Inter-County Drainage Board. George Hamlin is project engineer for the consulting engineers, Pate and Hirn, Inc., of Detroit.

The Miami International Airport, designed for the jet age in aviation, where 74 aircraft can be loaded or unloaded at one time.

Sleep in the Midst of Take-Offs

Miami air terminal is topped by a major hotel, sound-proofed and air-conditioned

The new passenger terminal at Miami International Airport is one of the largest and most modern of its kind in the world today, as was pointed out in this magazine for October 1959. Development of the airport has been in progress since the end of World War II. So fast is the aviation industry expanding that it is half again as large as the original plans contemplated. Two extra passenger stations were added, as well as a two-story Consumer Service Building (90 feet wide by one-third mile long) located in the center of the terminal facing the parking lot. Atop it is a five-story, 274-room, first class commercial hotel—the first major hotel in the nation built as part of an air terminal.

Hotel-Terminal

Before considering building a hotel virtually on top of planes landing and taking off, Steward and Skinner together with Mitchell and Gordon, Coral Gables consulting engineers, combined the latest sound proofing and air conditioning techniques to keep the sound of airplane engines from disturbing sleeping travelers. (At 100 feet altitude, volume of sound from a jet aircraft on take-off will swell to 120 decibels.) Since noise enters a building through windows, walls, roof and air intake ducts, the problem was handled by including the following in the building plans:

1. Triple glazed windows, with the outer window at a 5° angle to the surface of the inner window, reduce vibration and transmission of sound.

2. Both outer and inner surfaces of the building's concrete block wall are sealed.

3. There are two feet of air space between the ceiling and roof slab.

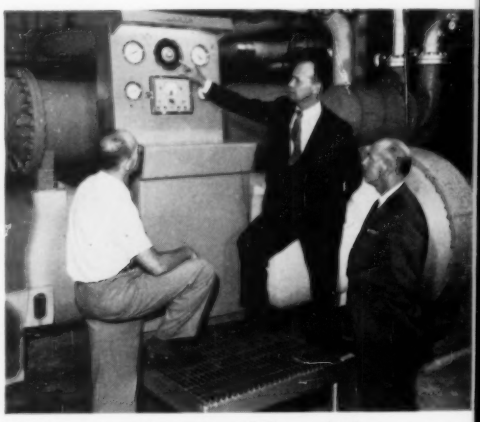
4. The building is closed up tight to restrict entrance of airport noises. Air conditioning, necessary in a sealed structure, helps nullify objectional outside sounds.

Air Conditioning Essential

Average outside temperatures in Miami throughout the year normally range from 70° to 90°F. This heat, plus that generated by lights and people within the terminal, total nearly 18 million BTU's per hour. Taking sunshading devices into consideration, over 3,000 tons of cooling capacity are required to handle the entire terminal-hotel load—the largest refrigeration system serving a single building in the Southeast.

Seven Carrier centrifugal refrigerating machines furnish 6,285 gpm of chilled water to 112 built-up fan-coil conditioners in service rooms throughout the terminal. Each equipment room houses from three to five air handling units comprised of a fan section, cooling coils, dampers and air chambers. Here 10% outside air is mixed with return air, filtered, cooled and dehumidified and circulated through low velocity ducts at 1,000 feet per minute.

The purpose of sectional apparatus rooms is for optimum control at maximum economy. Instead of operating a central plant continuously at peak performance, individual systems can fluctuate with passenger traffic.



Carrier hermetic water chiller which serves hotel, with Leonard J. Gordon (left) and Jack E. Mitchell (pointing), both of Mitchell-Gordon & Associates, consulting engineers, and Architect Harold D. Steward of Steward-Skinner, the Miami architectural firm which designed the International terminal.

The hotel is served by an independent system. Conditioned air is sent at high velocity through slim conduits with sound absorbing cells to ceiling-mounted units in each room. Room occupants can "dial" their own weather. The cooling source is an eighth Carrier centrifugal water chiller with a cooling capacity corresponding to the daily melting of 490 tons of ice.

Three completely independent electrical transformer vaults supply 12,000 kw electricity for the entire terminal. Should a power failure occur, the load automatically shifts from one to the other. If all three should fail, generating units start automatically. When power is restored they stop automatically.

What—

MASSEY-FERGUSON
INDUSTRIAL EQUIPMENT

Has Done for Other Public Works Departments

IT "CAN DO" FOR YOU!

with Sizeable Power for the "Sensational 60's!"

HERE'S WHAT

MASSEY-FERGUSON INDUSTRIAL EQUIPMENT "CAN DO!"

- LOWER EQUIPMENT COSTS
- INCREASE EFFICIENCY
- REDUCE MANPOWER REQUIREMENTS

Public Works Departments all over the country have found their solution to rising equipment and manpower costs by switching to Massey-Ferguson Industrial Equipment. Not only do they get out with lower initial cost, but they get performance that is superior to larger, more expensive equipment. With all the quick-change attachments designed especially for Massey-Ferguson Industrial units, idle equipment time is reduced to a minimum and manpower efficiency is increased to the maximum. What Massey-Ferguson has done for others, it CAN DO for you.

THE VERSATILE MASSEY-FERGUSON 1001 TRACTOR SHOVEL

This high-quality, 1-cu.-yd. (SAE rated) tractor shovel is a real time and money saver. Equipped with exclusive Massey-Ferguson Instant Reverse it wastes no time in loading or clean-up operations. You simply push one pedal to go forward, another to go reverse. With 9300-lbs. pryout capacity, 36° rollback at ground and 46° at 3′ carry, plus direct thrust from hinge point to bucket tip, it gets big loads fast . . . and keeps 'em. Telescoping arms permit 124″ lift height (to hinge point). Fifty-one degree dump angle assures clean dump. Check its full range attachments and select the ones you need — to virtually equip yourself with a fleet with one power unit.

EASILY CONVERTED TO PICK-UP STREET SWEEPER...OR BLACKTOP SPREADER

The Ram Pick-up Street Sweeper is easily attached to the Massey-Ferguson 1001. It is completely hydraulically controlled, has its own water supply and sprinkler system. Dumps debris directly into truck.

Another versatile attachment for the Massey-Ferguson 1001 is the Ram Blacktop spreader. Ideal for handling patching and paving jobs in streets, alleys, driveways, etc.

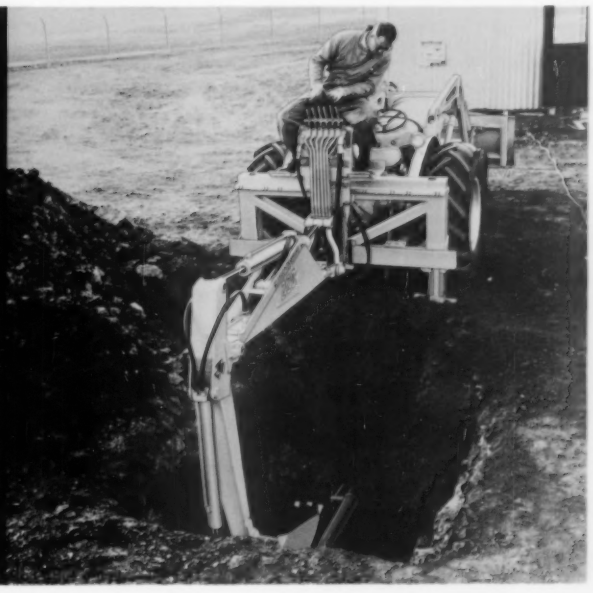
AND THESE OTHER ATTACHMENTS Ram Rotary Snow Plow . . . Ram Leaf Loader . . . Rotary Backhoe . . . Angle Dozer . . . Swinging Crane . . . Scarifier . . . Lift Fork

THE AGILE MASSEY-FERGUSON 204 with INSTANT REVERSE with TORQUE CONVERTER

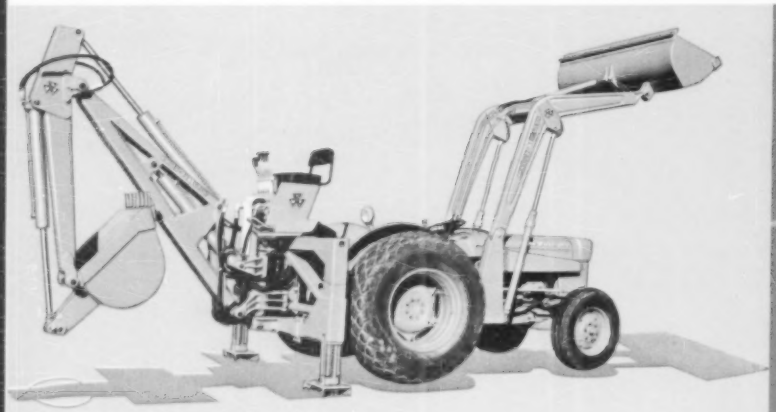
For a compact, versatile, and maneuverable utility rig there's nothing that compares with this 40-h. p. Massey-Ferguson 204 equipped with power-matched Loader and Backhoe. It's the only industrial tractor in its class with Instant Reverse and Torque Converter. Think of all the time it saves — and how easy it is to move in and out of congested areas . . . or from load to dump. Just a touch of the foot pedal and it changes direction of travel . . . the same pedal controls acceleration. Speeds are equal in either forward or reverse. For loading, clean-up, backfilling, clearing, landscaping, or any of the hundreds of maintenance chores a public works department has to perform, you'll never find another industrial tractor that will match the performance of the 204. And, with its many attachments you can keep it and its operator busy day in and day out.

THE FAMOUS MASSEY-FERGUSON BACKHOE ...MASTER IN TICKLISH DIGGING —INCLUDING FLUSH

The Massey-Ferguson 220 Backhoe is by far the best buy in its field. It provides unexcelled visibility for precision digging. It is the first backhoe ever designed to dig flush alongside walls, fences, or buildings . . . and it's the only flush digging backhoe that lets the operator sit directly in line with the bucket. Hydra-slide positioning hydraulically shifts the entire digging assembly, mast, seat, and controls left or right. It has 14,000 lbs. breakout power to permit digging in frozen ground or through blacktop.



The Low-Cost...Powerful and Versatile MASSEY-FERGUSON 202 Has Plenty of "CAN DO!"



This Massey-Ferguson 202 with integrated Model 101 Loader and 185 Backhoe is the finest buy in a low-cost, all-around utility rig. The 40-h. p. tractor develops tremendous lugging power at low speeds and is available with either standard or dual clutch as well as the famous Ferguson hydraulic system for 3-point hitch attachments. The rugged 101 Loader has a variety of attachments for added versatility. The Model 185 Backhoe can work at right angles to the tractor. Develops 10,000 lbs. breakout power.

...even converts into a maintainer...grader... leveler...and ditcher...

The Lev-L-All converts your Massey-Ferguson 202 into an all-purpose maintainer and grader that will match the work output of a single-purpose 50-h. p. tandem motor grader in its weight class. Yet, the 202 never loses its versatility because the Lev-L-All is easily detached and the tractor can be used for its normal functions. The Lev-L-All features hydraulic leaning wheels and blade operation at your finger tips.

...or a trencher

The Auburn Trencher is another integrated attachment for the Massey-Ferguson 202. It operates in soil conditions that other trenchers can't touch. It has a variable speed drive that automatically adjusts speed to changing soil conditions. Digs up to 800 feet per hour. It will dig from 6" to 14" widths and down to six feet deep.

Why Wait?—Set a Date—We'll Demonstrate!

MASSEY-FERGUSON INDUSTRIAL DIVISION

1009 SOUTH WEST STREET • WICHITA 13, KANSAS

NOW!

improved...
streamlined...
modernized...the

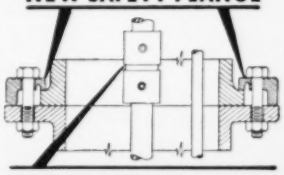
EDDY Hydrant

has ALL these features...

★ *Optional ground line break flange*
★ *Large diameter barrel for increased flow*
★ *O-ring or standard packing*
★ *New self-sealing rubber ring main valve packing*
★ *No lubrication required for fast, easy opening*
★ *Opens with the pressure—for instantaneous flow*
★ *Closes against the pressure—eliminates water hammer*

Optional break flange gives double protection against impact damage

NEW SAFETY FLANGE



NEW SAFETY COUPLING

The EDDY Hydrant...improved... streamlined...modernized...retains all the basic advantages that have made these hydrants outstanding for four generations. Yet, it has important new advanced design features which provide the utmost in efficient, dependable, longlife fire protection service.

These new important advantages are provided without sacrificing interchangeability of working parts with EDDY hydrants now in service. Now, more than ever, EDDY offers maximum fire protection, economical maintenance and assurance against future obsolescence in your fire-fighting system.

Before buying or specifying hydrants, be sure you know how these advantages may benefit your community.

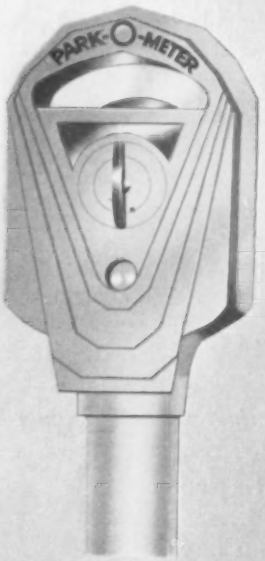
EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.

WATERFORD NEW YORK

SILVER ANNIVERSARY

PARK-O-METER

FIRST IN 1935
AND STILL FIRST!



1935

In July 1935 One Hundred and Fifty (150) PARK-O-METERS were installed in Oklahoma City, Oklahoma. It was the World's first parking meter installation.

25
YEARS OF LEADERSHIP!

1960

Today, more than 600,000 Park-O-Meters are in use in more than 1400 cities in every continent on earth and new installations are being added every day.

A QUARTER CENTURY OF ADVANCEMENT

Originally conceived and built by the late Carl C. Magee to use nickels only, the modern PARK-O-METER accepts pennies, nickels, dimes, quarters and tokens in payment for time periods ranging from 6 minutes to 72 hours thus meeting every curb-side and off-street parking requirement.

Magee-Hale

PARK-O-METER COMPANY
3909 Willow Springs Road
OKLAHOMA CITY 2, OKLAHOMA

An attractive, useful and economically productive off-street parking lot (above) . . .

. . . made from a run-down, worthless block interior (right).

St. Albans, Vermont, upgrades its business district by an organized, community-supported system of . . .

Off-Street Parking

By JOHN M. SIMMONS*
City Manager

Urban renewal or improvement in the usefulness and attractiveness of our entire downtown has resulted in our new off-street parking facilities.

St. Albans (population 9,000) is a thriving trading center for almost 25,000 county residents, as well as thousands of Canadian shoppers who flock to this city on week-ends. In addition to diversified industry and a railroad center, St. Albans considers tourism one of its important assets. The international Route 7 from Montreal bisects the city and consequently adds not only a traffic problem but a parking problem as well.

In 1955, Mayor Roland Keenan and the city council realized that if the downtown business area were to retain its attractiveness, the city would have to provide more parking spaces for the shoppers and the tourists.

Therefore, the mayor appointed a citizens' study committee to investigate the problem. After several months of study the committee recommended a site for the city's first off-street parking lot.

Fortunately, several of the business blocks are extremely deep. The committee recommended that the first lot be located in the center of the largest and busiest of such business-area blocks. The city council responded by purchasing the property (8,935 square yards), financing it by the accumulated on-street parking-meter revenue. Shortly thereafter, city crews began demolition of the existing buildings, including an old foundry, garages and sheds.

In the early fall of 1958, the city awarded a contract for $23,607 to pave the parking lot. We specified a 4-inch bank-run gravel base; a

* Mr. Simmons has been assistant to the City Manager, Chico, Calif. and served for one year with local government authorities in Germany and England. He has served under the St. Albans City Council as City Manager since June 1958.

second course of 2-inch crusher gravel, compacted; a 2½-inch layer of bituminous concrete in two courses, machine spread and compacted; concrete meter bases; 150 feet of concrete sidewalk; 658 lineal feet of bituminous concrete curbing; drainage pipe, and a 4x12-inch catch basin and grate. An additional $6,000 was spent by the city for demolition, legal and engineering fees and miscellaneous items. Four General Electric 23,000-lumen fluorescent lamps on two 30-foot Hubbard aluminum standards provide adequate lighting for the area. A total of 32 spaces are limited to two-hour parking and use Duncan-Miller Duplex parking meters; 68 spaces have been reserved for all-day parking.

Benefits

The immediate effects of the lot have been:

1. Reduction of traffic in the business area since shoppers no longer circle the business blocks in search of parking spaces.

2. Private "urban renewal" accomplished by abutting property owners who renovated interiors and rear facades. Many businesses have provided attractive rear entrances, and others are planning to do the same.

3. Accessible and convenient parking space for all-day users and increased revenue from on-street parking spaces.

4. Elimination of dangerous fire hazards and potential police problems in one of the highest valued business districts.

5. Improvement in the core of the downtown business area.

6. Better off-street loading and unloading facilities.

7. Increased parking-meter revenues which will enable the city to plan for additional parking lots.

STUDY UNITED FEATURES FOR "GRADE A" INVESTMENT!

Your budget requires long-term value for every dollar allocated — products must stand up for years. The next time you consider waste receptacles, remember this: United units withstood 100° sizzlers, snowstorms, scuffing and use by a multi-million New York City populace for over 20 years — and simply needed one coat of paint to look brand new! Let sturdy United units give sanitation help to your schools, colleges, institutions, and municipality. Catalog on request.

UNITED METAL CABINET CORP.

UNITED

8 East 36th St., New York • Factory: Pottsville, Pa. • Midwest Sales Office: 666 Lake Shore Drive, Chicago, Ill. • West Coast Distributor: Shore-Calnevar, Inc., 2881 East Pico Blvd., Los Angeles, Calif.

"Custom Engineered Waste Receptacles"

Twice-a-Year Water Bills For Philadelphia

Philadelphia's Water Commissioner, Samuel S. Baxter, has announced that a new system of semi-annual, or "cycle" billing, for the city's 500,000 domestic water users started on January 1, 1960.

Every domestic water meter will be read twice per year, six months apart. Commercial, industrial or other large users will receive quarterly or monthly readings.

Under the old system, a "minimum" bill contained a basic service charge that covered the entire year. Subsequent "excess" bills—sent out irregularly, depending upon meter readings — contained only charges for water beyond the quantity allowed by the service charge.

Under the new system, the annual service charge to domestic users will be split between the two semi-annual bills and charges for extra usage between the two previous readings will be added at the time each is sent out.

The new system is expected to result in smaller individual cash outlays by customers. It also will provide them with an up-to-date picture of their accounts every six months (or oftener, in the case of commercial and industrial users).

Under cycle billing, approximately 4,600 water meters will be read each business day throughout the year. Thus, water and sewer bills will be going out continuously, making it possible for the city's Department of Collections to spread its work load over the year, with more efficient use of personnel.

WHY DID DADE COUNTY BUY 116 MORE LARKS?

50 Larks were bought for trial. Four months later 116 additional Larks were bought – for use by all departments of Metropolitan Dade County, Florida ➤ Studebaker's own fleet records show why. Operating expense in this period was more than 21% lower than Big Three cars ➤ Gas mileage ranges from 16 to 26 miles a gallon, depending on service and driver ➤ Drivers like their maneuverability and easy parking. They speak of the inherent quality of material and workmanship, the way the doors fit—and many have bought Larks for themselves.

Budget-wise buyers
LOVE THAT **LARK** ➤
BY STUDEBAKER

TELL US MORE ABOUT LARK SAVINGS!
Fleet Sales Division, Studebaker-Packard Corp., South Bend 27, Indiana
( ) Send us informative literature only
( ) Have a factory representative call me for an appointment

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DEPENDABLE, HIGH EFFICIENCY TESTED

LIGHTING

FOR BUSINESS THOROUGHFARES, SHOPPING CENTERS, HIGHWAYS, TURNPIKE INTERCHANGES, ETC.

PEMCO METROPOLITAN FLUORESCENT LUMINAIRE

STYLE 72

Metropolitan Style 72 is the first of a series of new Pemco Fluorescent Luminaires. Cat. No. 72-804 is for use with four 72" 800 MA lamps, Cat. No. 72-154 for four 72" 1500 MA lamps.

Housing is of one-piece moulded gray fibreglas — no painted surface to fade or peel. Pemco's specular reflector assures maximum utilization of light output and proper direction of light. One-piece moulded heat-resistant clear acrylic enclosure eliminates possibility of cracks from cemented joints. Luminaire is rigidly reinforced throughout. Request Bulletin 125 for complete information on the Pemco Metropolitan Style 72 Fluorescent Luminaire.

COMING SOON

PEMCO METROPOLITAN FLUORESCENT LUMINAIRE — Style 72 — for two 72" 1500 MA or two 72" 800 MA lamps, and

PEMCO METROPOLITAN FLUORESCENT LUMINAIRE — Style 48 — for two 48" 1500 MA or two 48" 800 MA lamps.

PEMCO LIGHTING HAS BEEN QUALITY LIGHTING SINCE 1882

PHILADELPHIA ELECTRICAL & MANUFACTURING COMPANY

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Pemco

A FIRST IN CANADA

Traffic Sig... Ottawa's Traffic Signals Synchronized ...Emergency

From the Ottawa Citizen, Nov. 4, 1959

By **M. THOR NIELSEN**
Traffic Director

Before 1960 closes, all but a few of the signal lights of Ottawa's 145 signalized intersections will be synchronized. The first stage involving 50 downtown intersections was launched in a City Hall ceremony on November 4, 1959. Since then another 30 intersections were added.

The co-ordinated system, which is the first of its kind in Canada and the largest of its kind on the North American continent, will provide Ottawa with one of the most modern and flexible traffic control systems available. The operation of the control switch by City Controller Paul Tardif climaxed two years of planning and preparation by the Traffic Engineering Department.

The growth of our urban community and the increase in the density of traffic on all streets and highways have brought greater emphasis on progressive traffic movement and on flexible control of all traffic functions.

These traffic requirements may be satisfied, where vehicle and pedestrian characteristics throughout the week may be predicted, by the installation of a pretimed progressive traffic control system both in the grid pattern of the city central business district and along the urban and suburban traffic arteries.

In general such a system consists of intersection controllers and a master controller. The master is the source of supervisory information and must be able to choose all controller functions to answer the needs of the system at all hours of the week. It must also transmit this information to the interconnected local controllers, which translate the information they receive into a working pattern to regulate traffic flow safely and smoothly.

The control center for the entire Ottawa system is in the traffic engineer's office in City Hall. It is from this point that information is transmitted over a single pair of Bell Telephone wires to the various intersections controlled by traffic signals, where the information is received and translated to set up a co-ordinated system of traffic signals.

One of the most important functions of a master control is to select the amount of green and red light

24-hour clock with spring reserve to keep clock going and maintain time should power fail.

Program unit decides how the system should favor inbound or outbound traffic.

Transmitter sends the information to the intersections of the group selected by the unit below.

System selector chooses systems to be programmed and indicates program for each system.

Program unit decides which group of intersection controllers will receive the new program.

Power supply.

Say at 3:30, the upper program unit initiates the transmission of a new program. At the same time the lower program unit decides which of the systems should receive that program. Transmitter sends this new program to all of the intersections of the selected systems. The system selector displays the new program.

Better angle visibility with **DIE EMBOSSED** *Signs*

Have you ever noticed how easy it is to read a DIE EMBOSSED sign from any angle? Die embossed letters and borders add rigidity, longer life and resist vandalism. Whether plain or reflectorized, die embossed signs are more economical, they can be made like new with paint and roller. You can gauge a community by the quality of its signs.

Die Embossed Signs *are your* Best Buy

Die Embossed signs are easy to refinish. A new coat of paint makes the background look like new . . . a roller brings out letters and borders to their original brilliance. The job can be done in minutes while the sign remains on the post.

- **S. G. ADAMS COMPANY, ST. LOUIS 3, MO.**
- **GOPHER STAMP & DIE CO., ST. PAUL, MINN.**
- **GRIMM STAMP & BADGE CO., ST. LOUIS, MO.**
- **LYLE SIGNS, INC., MINNEAPOLIS, MINN.**
- **MIRO-FLEX CO., INC., WICHITA, KANSAS**
- **N.S.E. SIGNS & STAMPINGS, B'HAM, ALA.**

allotted to each of the intersecting streets at any given intersection. Ultimately in the completed system there will be three different "splits" or combinations of green and red light available for selection at each intersection. One will be used for morning rush hour, one for the evening rush and one for normal conditions.

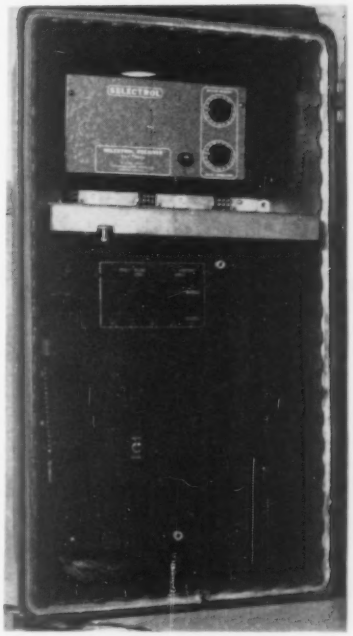
The second important function of the master control is to co-ordinate all the individual intersections to maintain a time relation between the green lights at adjacent intersections, enabling the motorists to proceed in the favored direction with the minimum number of stops.

During the morning the predominant flow is from the suburban area towards the center of the city. Consequently, the signal lights are synchronized to favor this traffic. In the evening rush hour the synchronization favors the traffic from the center of the city to the suburban areas.

The master control can also supervise synchronized movements set up for inclement weather favoring slower speeds. Special features include fire emergency routes, control of turning movements, designation of lane usage and civil defense routing.

Cost of setting up the first 80 intersections was $75,000 as provided in the 1959 capital budget. An additional $25,000 for 1960 will complete the system.

The master control unit and also the Selectrol receiver installed in each intersection controller were designed by the Littlefield-Alger Signal Co. of Rockville Centre, N. Y., which also manufactured the master controller. The Canadian General Electric Co., Ltd., manufactured and supplied the receivers and other auxiliary equipment, and the installation was made by Ottawa's Traffic Engineering Department.



Controller of any make contains a Selectrol receiver; the dial units are removed for clarity.

Survey Shows How Readingites Go to Work

Though the main purpose of parking meters is to break up all-day parking in the business district, a survey of 4,681 midcity workers revealed that 233 autos used by some of them parked all day long in downtown metered parking spaces of Reading, Pa. It showed that 1,723 persons used public transportation.

The Merchants Division of the Reading - Berks Chamber of Commerce sponsored the survey hoping that midcity employees would surrender metered parking spaces to shoppers. Results were tabulated by the market research department of Beaumont, Heller and Sperling, Sixth and Walnut Streets, Reading, Pa.

The second largest segment reporting in the survey, 1,446 people, drove their own cars to work with 502 of them parking in commercial garages and parking lots and 248 in non-metered spaces on the street.

The group of major concern to the Merchants Division is the 178 who park in metered spaces on the street and 55 who park in metered spaces on municipal parking lots.

Sponsors pointed out that even if 100 of these midtown workers are parking in spaces that could be used by others, possibly 600 shoppers are being denied parking space. This estimate is based on police reports that the most desirable parking spaces are used by six to eight cars each shopping day.

The survey showed that 686 workers walk to work, 535 regularly ride with someone else and 61 participate in private car pools. Two hundred and thirty others indicated miscellaneous methods of commuting, such as motor scooters and bicycles.

It was estimated there were 1,124 effective metered parking spaces in the area covered—805 at curbside and 319 on municipal lots.

Worker comments were generally favorable with a few points being raised in unsolicited comments.

One respondent indicated he walked to work because bus service is too expensive. Another indicated he was forced to drive because, he said, bus service is poorly scheduled and unreliable. A few comments indicated that the best way to make more parking spaces available for shoppers is to ban all-day downtown parking.

A complete census of the number of midcity workers is not provided by the survey. Eight thousand forms were made available to stores and offices. No organized effort was made to cover individual professional people and small offices. The forms were distributed by directors of the Merchants' Division.

Stickers like this were placed on meter posts.

The World's Largest Builder
Of Compact Cars Presents The Answer
To Rising Municipal Car Costs . . .

RAMBLER FOR 1960!

Proved by 10 Years' Experience and 25 Billion Owner-Driven Miles!

RAMBLER FOR 1960 . . . The Car That Remembers The Fleet Operator!

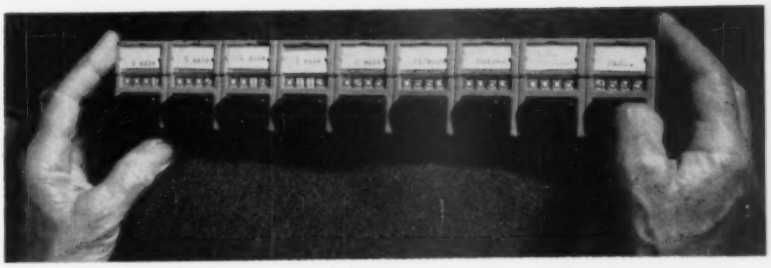
In 1960—more than ever before—it makes good sound sense to switch to Rambler for all your city government fleet requirements. For Rambler is the one car that offers the perfect balance fleet operators want:

- **LOW FIRST COST**—Compare Rambler's low initial cost with that of your present fleet units. You'll find you save when you buy Rambler.
- **TOP ECONOMY**—Rambler is America's recognized economy king. With more miles per gallon and low maintenance cost, you save every mile your Rambler fleet units operate.
- **HIGHEST RESALE VALUE**—You save again with Rambler when it comes time to trade or sell. Rambler has top resale value of all low-priced cars according to official used car guide books.
- **STRONGER, SAFER SINGLE UNIT CONSTRUCTION**—Pioneered by American Motors, Single Unit Construction means lasting freedom from body-bolt squeaks and rattles . . . cuts maintenance costs to the bone. Deep-Dip Rustproofing means lasting protection against rust and corrosion.

For Complete Information On How **RAMBLER** *Can Cut Your Fleet Costs . . .*

SEE YOUR RAMBLER DEALER
. . . or write or wire
FLEET SALES DEPARTMENT
DEPT. A-2
AMERICAN MOTORS CORP.
14250 Plymouth Road, Detroit 32, Michigan

Manual Count for More Traffic Data



Individual counters, arranged in a horizontal line, are labeled with the specific information they are to record.

In traffic counts, when it is necessary to know not only how many vehicles pass a given spot, but to count buses, trucks, and trailers as separate entities; to count pedestrians or out-of-state license plates; or to determine the number of vehicles that make a left turn or use a certain lane, say, at certain times of day, there is no machine to replace the human being. A man with a pencil is often unable to cope with a fast-moving stream of mixed traffic. To use more than one man is expensive for the smaller community which must fit within a limited budget the cost of equipping a few major intersections or other facilities with traffic control equipment and the expense of making adequate surveys beforehand to justify street and highway improvements.

It is expensive also for state highway departments. The California State Department of Public Works recently adopted a new traffic count system to supplement electrical and electronic devices. The manual counter selected was the Vary-Tally manufactured by Veeder-Root Inc., of Hartford, Conn. It registers and adds digits at a finger touch. Even with a dozen or more units mounted on a single board, any unskilled person can keep up with the traffic. When the day is done, all the totals are displayed on the faces of the counters and there is no tedious adding of figures.

Retired and elderly people, high schoolers and Boy Scouts may be used with just a few minutes of instruction.

Twelve Years with Evanston Parking

Nearly 12 years ago, the Evanston City Council decided to take the lead in solving the several needs of off-street parking — for the shopper, worker, businessman, and for the resident. Downtown, the shopper was using 20% of the spaces; the downtown worker used 50%; the car user on non-shopping trips used the remaining 30%.

The Evanston City Council, with favorable recommendations from its Plan Commission and from a special Chamber of Commerce Committee, met the problem by a number of interrelated actions:

1. In Aprii 1958, the city installed its first 1,219 curb parking meters. The revenue was used exclusively for off-street parking.

2. During the first four years, Parking System Fund earnings were used to establish 11 off-street parking lots with a total capacity of 518 spaces.

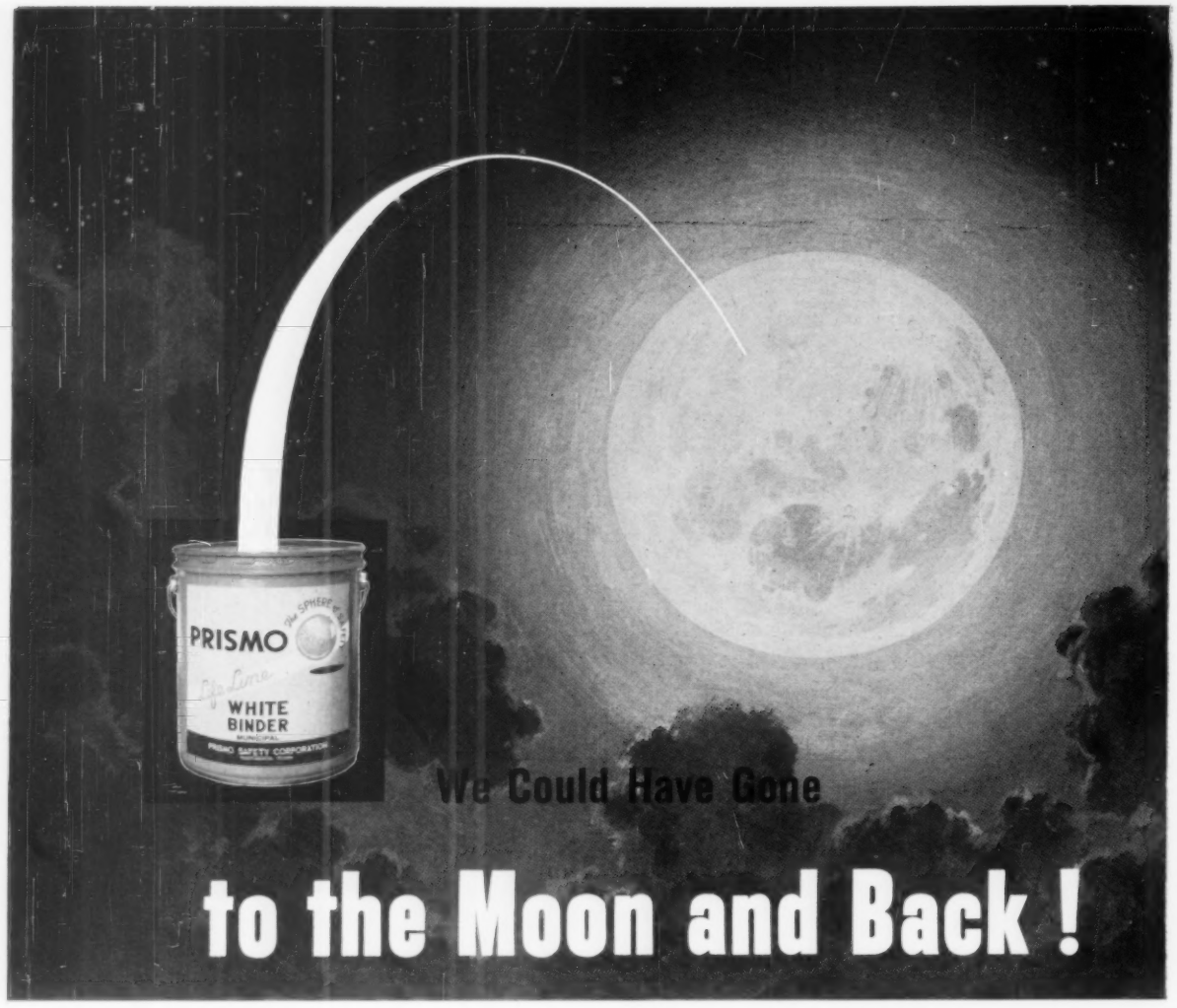
3. In 1952, revenue bonds were issued in the amount of $900,000 for three downtown lots to contain 479 cars and to cost $2,000 per space.

4. In 1956, in certain downtown lots, parking meters were replaced by an attendant parking validation system. Cooperating merchants purchased stamps from the city and gave them to their customers.

In 12 years the Evanston Parking System Fund has purchased and developed 31 off-street parking areas which provide 1,792 spaces. Revenue from street parking meters, primarily at the five-cent per hour rate, grossed $1,284,600 through 1958, an average of more than $80 per meter per year. Revenue from the 31 lots developed over the period grossed $581,442 through 1958. Accordingly, gross revenue from street meters and lots during the period was $1,866,042.

Land purchased for off-street parking through 1958 required an expenditure of $1,313,359; development cost $145,453 and meters and equipment in these lots cost $30,559. The total investment was $1,489,372 for 1,167 spaces and the average space cost amounted to $1,276.

BERT W. JOHNSON
City Manager
Evanston, Ill.



MILLIONS OF GALLONS of Prismo LifeLine have been used to stripe the world's highways, secondary roads and city streets in the past 22 years . . . enough to guide you safely to the moon, bring you back and then lead you around the earth until you'd be dizzy!

But more impressive to traffic engineers than this astronomical record is the reputation of Prismo LifeLine for quality, economy and brilliance . . . brilliance that comes forth immediately, then lasts and lasts. The semi-plastic binder for Prismo LifeLine seals in the moisture-proof reflectivity of the Prismo glass spheres, holds it for years of service. Result . . . unequalled durability.

Here in America Prismo LifeLine leads the way on great superhighways such as the Pennsylvania and Massachusetts Turnpikes. Tour Europe and Prismo LifeLine will guide you along beautiful Champs-Elysees in Paris, through the Brenner Pass across the Austrian frontier or along the historic Appian Way from Rome to Brindisi. There are no "stop signs" for Prismo LifeLine . . . it's the highway striping that goes further by any measure because it's in a class by itself!

PRISMO

PRISMO SAFETY CORPORATION

HUNTINGDON, PENNSYLVANIA

Rendering by Frank Grad & Sons, designers of Military Park underground garage, shows how park surface will appear after the construction of the 1,031-car facility.

Newark Gets Underground Parking Garage

A 30-year dream, a thousand-car parking garage under Military Park in Newark, N. J., has taken concrete shape and will cost $5,600,000. Contracts have been awarded by the Newark Parking Authority for construction; heating, ventilating and air-conditioning, electricity, plumbing, and elevators, and excavation is now well advanced.

The groundbreaking, in August 1959, was a tribute to Frank Grad, Newark architect and engineer. He had urged the project since 1929.

Grad's firm, Frank Grad and Sons, drew the plans which call for a three-tier reinforced concrete structure taking up 3.3 of the park's 5.9 acres. The roof will be four feet beneath the park's surface, with a depth of 34 feet from the surface to the floor of the lowest tier. The garage will be operated on a self-parking basis, with attendants stationed at various points to direct motorists to vacant spaces. The Authority may run the installation or lease it to private operators.

The structural design utilizes flat-slab floors supported by drop-head columns resting on concrete footings. The general construction contract requires that an existing nine-foot central-city relief sewer, now running through the heart of the site, be relocated around the structure and kept in operation during construction.

Ventilation will yield from 10 to 12 complete air changes per minute. A system of carbon-monoxide analyzers throughout the structure will spot abnormal air conditions and automatically supply more fresh air.

The structure will contain extensive automatic fire-detection and sprinkler systems. Most of the lawn area on the surface will be watered by built-in sprinklers.

Traffic Engineering in Las Vegas

The position of Traffic Engineer in the Las Vegas, Nev., Department of Planning was established in July 1956. The success of the traffic engineer's operations in Las Vegas has been due, primarily, to the spirit of cooperation with other city departments involved in traffic engineering functions. The total traffic engineering staff includes eight employees with an operating budget of $100,000 per year. This includes the installation of new traffic signals and signal maintenance, and construction and installation of signs. A complete sign shop operated by the Department of Public Works produces 90% of all traffic signs as well as street name signs.

Within the 25 square miles of the city there are 244 miles of paved streets, 150 of which are arterials; 25 signalized intersections, six of which are traffic actuated; 4,000 traffic signs; 1,500 Duncan parking meters and 2,900 off-street parking spaces.

Though the trend in most cities is to eliminate the scramble system, the City of Las Vegas continues its use. Four intersections have the scramble system along Fremont Street which passes through the heart of the Casino Area.

Because the traffic on our streets is made up largely of tourists from many states, we endeavor to keep our laws and regulations uniform with most states. In fact, our ultimate concern is the public.

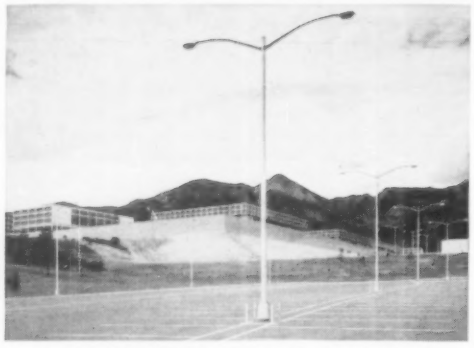
ALFRED A. BOSSI
City Traffic Engineer

Parking Bonds Gilt Edged

The Massachusetts Mutual Life Insurance Co. has purchased $1,300,000 of parking revenue bonds of the City of Orlando, Fla. (due in 1985-99) through Leedy, Wheeler and Alleman of Orlando, Fla. The new investment brings total securities holdings by the Massachusetts Mutual in Florida to more than $37,000,000.

MONOTUBE POLES FOR AIR FORCE ACADEMY

ROADWAY leading from the North Gate to the Cadet-Academic Area.



PARKING AREA on the Academy grounds.

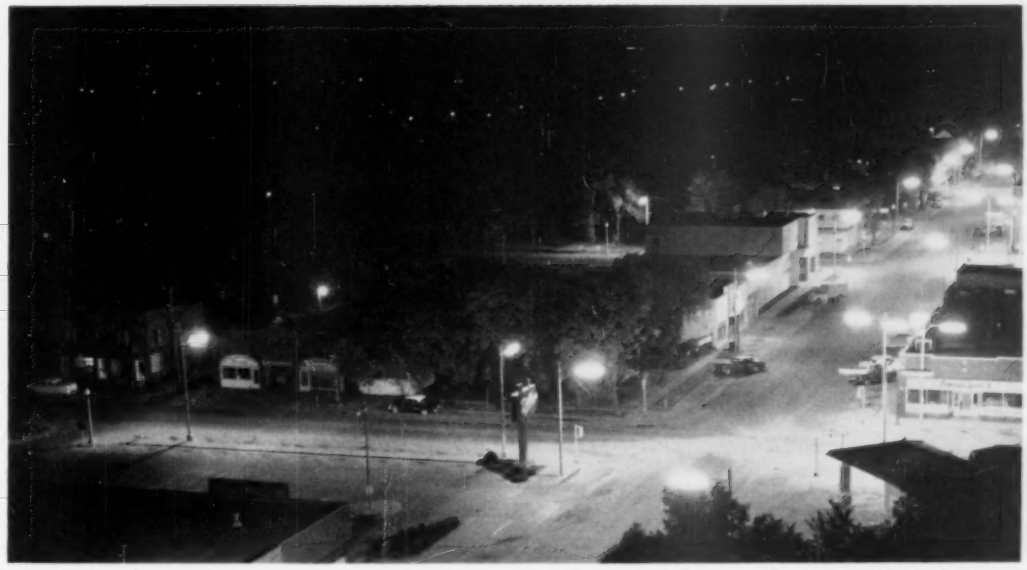
ATHLETIC FIELDS use 60' and 100' steel poles.

Installations throughout the country prove Monotubes offer the utmost in styling, strength and service.

UNION METAL

The Union Metal Manufacturing Co.
Canton 5, Ohio · Brampton, Ontario

Monotube Engineered Lighting Poles



Night in a "fluorescent city" of 10,000.

Why Go to the Moon?

By **F. D. DIEHL**, Superintendent
McPherson, Kan., Water & Electric Department

The people of McPherson, Kan., in 1910 paid $16,000 for their electric utility. It paid its own way and kept growing. Today it is valued at $8,000,000, debt-free. Taxes are about the lowest a city can have, because electric revenues save the taxpayers ten mills a year!

Some cities light the business district first but not McPherson. The areas where people lived came first. Outmoded fixtures were replaced by 1,300 new residential street lights. The job brought six times more light to the residential areas. The residential areas have four lights per intersection, two on each side of the block. The thoroughfares leading downtown are 300% brighter than the residential streets.

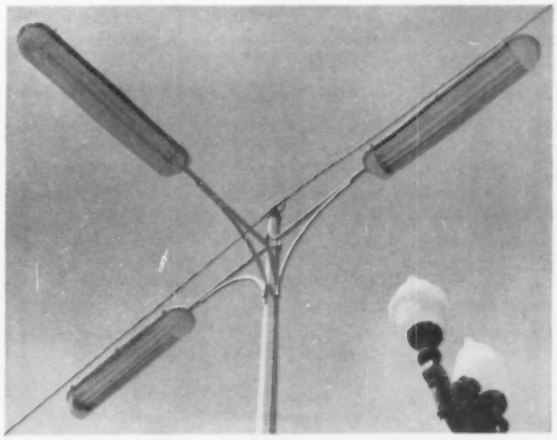
Fluorescents

The fluorescent lights downtown got the most attention, of course. Lighting experts figured out that McPherson's downtown area would be 325 times brighter than the moon.

The new fluorescents gave McPherson's downtown area six times as much light as it had before! That was something to think about—even in a city that has always been ahead! The new lights looked different, futuristic! People thousands of miles away read about the new McPherson lights in their newspapers—and wrote to McPherson to find out what kind of city this was.

For awhile the contrast was most exciting. You could still see the old-fashioned lights and compare them with the fascinating new three-luminaire fluorescents. This is a General Electric fluorescent T-lighting system. It uses three six-foot, four-lamp units on each pole to form the letter "T."

The installation of the modern fluorescent system climaxed a four-year relighting program which



Three-luminaire fluorescent T-lighting system on American Concrete standards replaced electroliers of an earlier era.

brought major lighting improvements to the residential areas, main thoroughfares and intersections, and the downtown section.

McPherson Police Chief Paul Smith said, "Our new street lighting program has just about 'illuminated' crime out of existence in residential areas." In the first year after installation of the residential lighting, there were no window peepings, house burglaries, or prowlers reported in a neighborhood that averaged 30 cases a year during the previous decade.

First installation completed in the $378,000 program was in the residential area where 1,300 incandescent luminaires were turned on in December 1957.

A total of 474 General Electric "power-pack" mercury-vapor luminaires now light the four main thoroughfares leading to the downtown area and four highway intersections on the outskirts of town.

Last to be installed were the 344 fluorescent units in the downtown area. Each of the 96 three-unit T-lighting installations provides more than 100,000 lumens. Single fluorescent fixtures are mounted on each of 56 other poles. Maintained illumination in the downtown area is 6.5 footcandles—giving McPherson one of the brightest business sections in the nation.

The new lighting system is being financed by revenue from the city's Water and Electric Department without resort to bond or tax money.

Relamping from a hydraulic aerial platform made by the Pitman Manufacturing Company, Grandview, Mo.

Osage Lights Draw in the Farm Population

The 67 fluorescent luminaires originally installed by the local utility have not only attracted business to this farm community of 3,600, but have made it a showplace. Civic officials and others throughout the state and neighboring Minnesota have come to view them.

Local acceptance has been so overwhelming that the Electric Utility Board is considering additional lighting, perhaps mercury units, next year to dress up other sections of town.

After two years, downtown merchants continue to report increasing night-time shopping. The bright cheery downtown pulls in shoppers from the farms.

The first 36 General Electric fluorescent units were installed with power groove lamps early in 1958. Spacing of the six-foot, four-lamp units was about 60 feet and it produced 2½-footcandles in downtown Osage, brighter than the main street of many larger cities.

Not too long afterwards 31 more units were installed, giving Osage a 15-block area with fluorescent lighting.

The improvement was obvious. An early installation of pendant incandescent luminaires supplied only about one footcandle of maintained illumination.

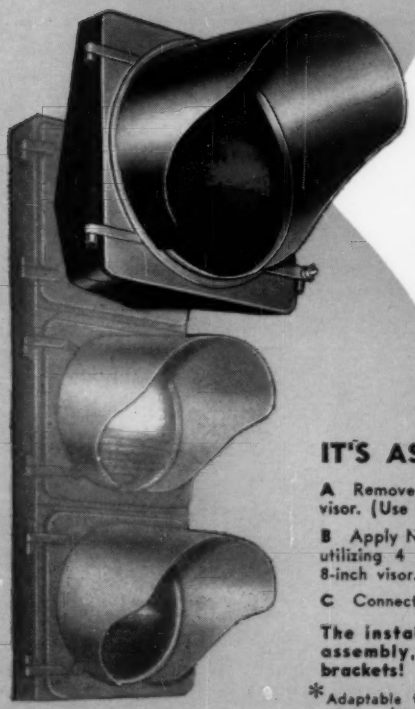
The cost was borne by the Light and Power Department of the City of Osage. Power for the lighting—and for the entire community—comes from the municipally-owned power plant with a generating capacity of 2,750 kilowatts and a 2,000 kilowatt tie-line with the Dairy Line Power Co-op.

ED DAVIDSON
Chairman, Electrical Board
Osage, Iowa

Osage has its bright future now.

EAGLE'S NEW
12-INCH SIGNAL ADAPTER

modernizes existing traffic signals rapidly and inexpensively . . . . regardless of make.*



MODEL KB331
Patent Applied For

IT'S AS SIMPLE AS A. B. C!

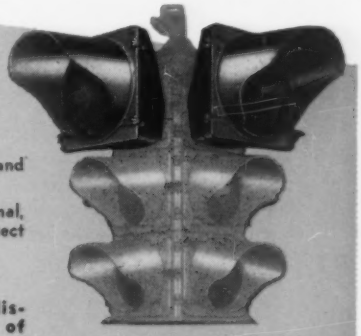
A Remove present 8-inch optics, including lens and visor. (Use the components for spares).

B Apply NEW adapter to door of your 8-inch signal, utilizing 4 tapped holes previously used to connect 8-inch visor.*

C Connect socket leads to terminal block.

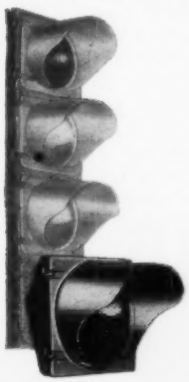
The installation eliminates all need for disassembly, rearrangement or replacement of brackets!

*Adaptable to all conventional 8-inch signal heads having square doors. Most installations will utilize holes previously used to attach visors. Fasteners and instructions furnished in kit for installations requiring the drilling of new holes.



Applies perfectly as your solution to 12-inch red indications on square, non-adjustable type signals.

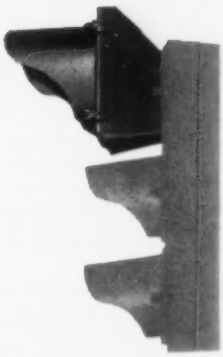
Within Minutes YOU HAVE THE ADDED COMMAND OF MODERN 12-INCH SIGNAL INDICATIONS!



. . . with the superior features of all Eagle Traffic Signals, including —

- **Lightweight cast aluminum body.**
- **Stainless steel outside hardware.**
- **Dustproof and waterproof. Neoprene gasketing throughout.**
- **Adjustable lamp socket. Easily focused, yet held firmly in the plane of maximum efficiency.**
- **Same highly efficient optics.**

Applies neatly and effectively to all modern 8-inch traffic signals. Gives every indication of belonging . . . does not look tacked on! Advance plane of the adapter face gives added "punch" and aids in shielding the balance of the signal indications from overhead light reflection.



ADAPTABLE TO ANY NEED
. . . at the top as a 12-inch red.
. . . at the bottom as an arrow indication.

This new 12-inch signal adapter comes to you in one easy-to-install package, complete with 150 watt lamp. More often than not, all you'll need in addition is a screwdriver for installation.

EAGLE

EAGLE SIGNAL COMPANY
A Division of the Gamewell Company
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Eagle Equipment Saves Lives — Saves Time

Contact your nearest Eagle representative or mail coupon today!

EAGLE SIGNAL COMPANY, Municipal Division
Dept. AC-260, MOLINE, ILLINOIS

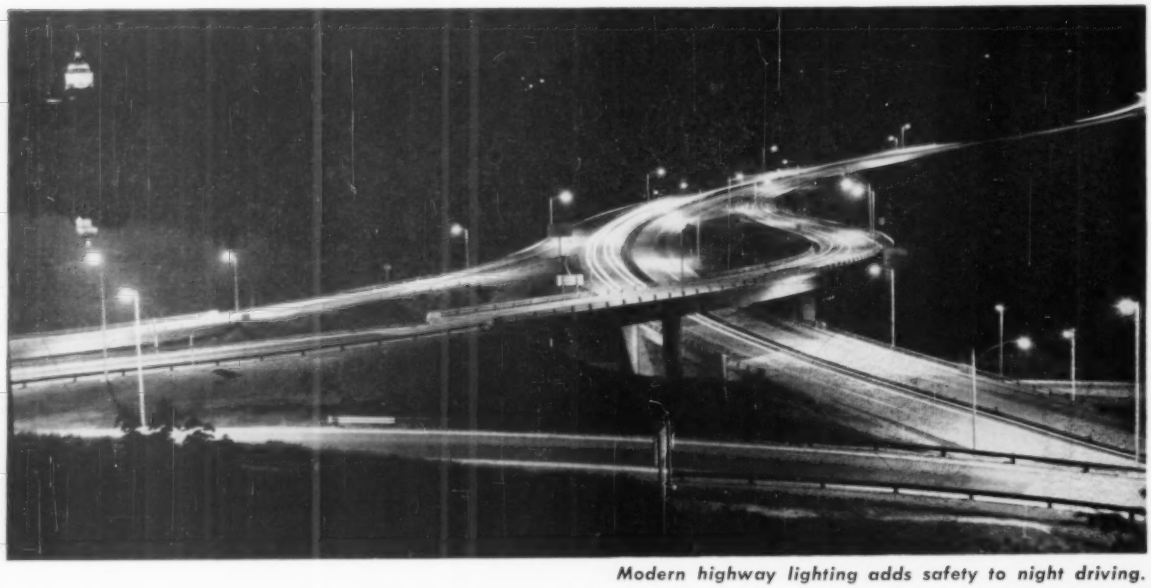
☐ Send Sales Representative for first-hand demonstration

☐ Send Prices & Best Delivery on _____ KB331 12-inch adapter kits.

NAME AND TITLE

ORGANIZATION

FULL ADDRESS



Modern highway lighting adds safety to night driving.

New Olympia Freeway in Washington

More than 30 bridges interconnect the new $12,000,000 freeway with city streets and country road systems as it passes through Olympia, Wash.

Ribbon-cutting formalities were handled by Albert D. Rosellini, governor; W. A. Bugge, Director of the State Highway Department; and Colonel Edgar Wright, representing the commanding officer of Fort Lewis, Washington.

Official opening of the six-and-one-half-mile stretch of highway concluded more than four years of construction. Early in the development stage, engineers of the State Highway Department recognized there was a definite need for adequate illumination. Good lighting would (1) increase the use of the highway on a 24-hour basis, (2) raise the safe night-driving speed, (3) provide better utilization of the traffic lanes, and (4) help identify entrance and exit lanes. Over 200 mercury vapor luminaires, manufactured by Line Material Industries, were approved for the lighting project. They are mounted on 30-foot Carco aluminum poles furnished by Pacific Car and Foundry Co., Renton, Wash. and erected by Electric Construction Co., Tacoma, Wash. The 21,000-lumen lamps, provide high-level illumination of the interchange and ramp areas.

The Olympia Freeway reduces travel time between Seattle and Portland, the Pacific Northwest's largest cities. In addition, the state capitol grounds can be readily reached without driving through a congested business district.

Three-level construction of Olympia's freeway.

P & K OUTDOOR LIGHTING REPORT

the Modern Trend in LOW LEVEL LIGHTING

TOP PHOTO: Location: Rath Park, Franklin Square, L. I., N. Y.
Architect: Herbert D. Phillips
Consulting Engineers: Barstow, Mulligan & Vollmer
LOWER PHOTO: Location: Fairleigh Dickinson University, Madison, N. J.
Electrical Consultant: H. L. Sykes

modern lighting at a realistic cost

Here are two contemporary outdoor lighting installations – one an all new municipal swimming pool and recreational area – the other, a prominent New Jersey University. Both chose the P&K all aluminum CIRCLElux lighting package to illuminate and compliment their roadways, walkways, landscape and architecture.

The sweeping lines of the P&K CIRCLElux davit blend with the modern one story architecture of the Rath Park Swimming Pool. Yet, the modern, but stately, design of the P&K CIRCLElux post is in good taste with the traditional architecture of Fairleigh Dickinson University. The CIRCLElux lighting package is the correct low level lighting choice to compliment almost all types of architecture.

The P&K CIRCLElux is available in a wide range of davit styles and mounting heights. The post is available in one basic design but at various mounting heights and with the CIRCLElux you have a choice of three light sources – incandescent, mercury vapor and fluorescent. This combination of luminaires and davits or posts will enable you to specify "packaged" lighting units. This means easier specifying by using matched components which in turn can customize your lighting projects.

Send in your reservation now for the *new* CIRCLElux catalog.

P&K **PFAFF & KENDALL** 84 FOUNDRY ST., NEWARK 5, N. J.

BRANCH SALES OFFICES: MIAMI, FLORIDA; BURLINGAME, CALIFORNIA
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DUNCAN NOW PRESENTS THE V.I.P.*
THE ONLY PARKING METER ACCEPTED AND AUTHORIZED TO CARRY LABEL BP 847 OF Underwriters' Laboratories, Inc.

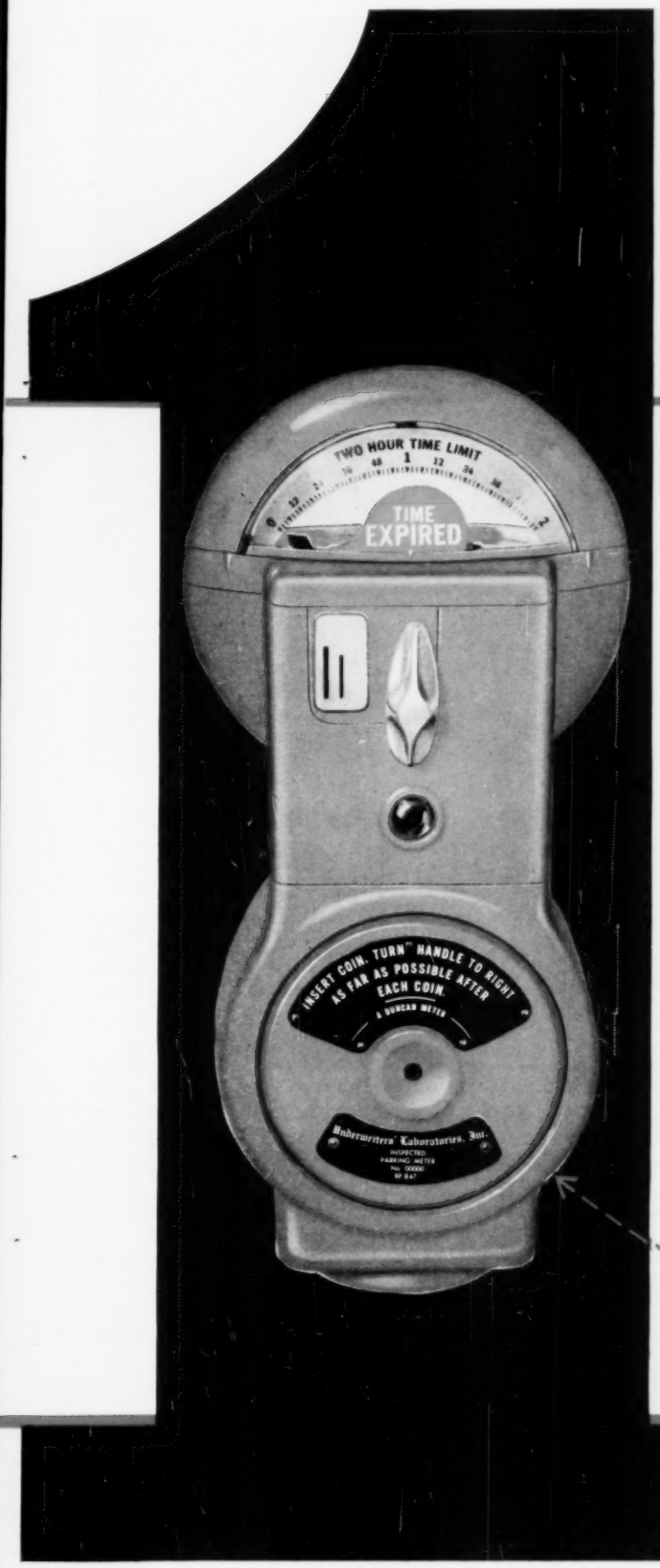
EXHAUSTIVELY TESTED AND ACCEPTED

As a result of the most comprehensive and exhaustive series of studies and tests ever performed on a parking meter, the Duncan V.I.P. meter has been inspected and authorized Underwriters' Laboratories, Inc. label.

Expertly tested by independent specialist engineers not only for mechanical and "all weather" operational efficiency, but also for security, resistance to vandalism and malicious abuse. This label is your assurance that only the Duncan meter meets the high, rigid specifications of the world's foremost testing laboratories.

***VAULT INSURED PROTECTION AGAINST VANDALISM**

DUNCAN PARKING METER
Division of Motor Products Corporation
835 NO. WOOD STREET CHICAGO 22, ILLINOIS


TWO HOUR TIME LIMIT
TIME EXPIRED
INSERT COIN. TURN HANDLE TO RIGHT AS FAR AS POSSIBLE AFTER EACH COIN.
A DUNCAN METER
Underwriters' Laboratories, Inc.

CHECK THESE OUTSTANDING PROTECTION FEATURES:

TAMPER-PROOF BOLTED DOOR

This, too, is an entirely new concept in meter door security. Actuated by Duncan's exclusive submerged "mystic" lock (entirely hidden underneath cast iron door), the new double-bolt locking device is highly resistive to forceful attempts of entry through the locking area. When the V.I.P. door is locked—*it stays locked.*

BURGLAR-RESISTIVE HOUSING

Contoured collection housing and vault-like door are precision constructed of malleable cast iron recognized for extra toughness. This rugged combination offers dynamic resistive strength and protection to collected meter receipts. Inside door hinges greatly increase security by eliminating attempts of prying, chiseling, or hammering.

PATENTED SEALED COIN BOX

Duncan's famed Patented Sealed System of collection protection is also available with the V.I.P. meter. Collector cannot handle or see collected coins. Using but one sealed coin box, instead of two, Duncan's Patented System is the fastest and safest method of revenue collection ever devised.

V. I. P. EXCLUSIVE

Submerged mystic-lock increases security to the coin compartment. Non-exposure virtually eliminates malicious lock area vandalism.*

*Trade Mark

The Fluoresign is an outdoor fluorescent luminaire that provides high-visibility illumination for signs, panels, walls, posters and highway markers. It is modular to fit any size sign. It is simple to install and maintain. Models available for all fluorescent lamp types.

Revere Fluoresign gives high-level controlled light for highway signs

High-speed driving on modern highways makes efficient lighting of highway signs a must for safety and driving convenience. Revere's Fluoresign provides the high level of glare-free light needed. The Fluoresign distributes light evenly over the entire sign area, eliminating hot spots and glare. It attracts attention to the sign and allows fast, accurate reading.

Specify Revere Fluoresigns for every location where safe, smooth traffic flow depends on instant attention to traffic control signs. Fluoresigns provide the essential high visibility for fast, easy reading of signs in these key locations.

Assembles to any length The Fluoresign can be fitted to any size highway sign by joining combinations of standard 4, 6, or 8-foot reflectors with standard socket assemblies. The reflectors join to form a continuous, unbroken line that blends attractively with the sign.

Easier adjustment Fluoresign reflector and lamp assemblies rotate as a unit in relation to the mounting arm. This permits accurate placement of light even while lamps are burning. Degree marks on socket assemblies allow easy adjustment of the unit to the desired angle for best lighting.

Easier maintenance A new Butyrate one-piece snap-on cover and the all-compressible sockets make relamping and maintenance easy. The cover shields the lamp from cold weather, helps maintain light output when temperature drops. It won't break, shatter or discolor. Its snug fit lets you mount the Fluoresign with the light directed upward.

Write for Fluoresign Bulletin 300-21 for full information

Revere ELECTRIC MFG. CO.®

OUTDOOR LIGHTING

Revere Electric Mfg. Co. • 7420 Lehigh Avenue • Chicago 48, Illinois (In suburban Niles)
Long Distance Phone: NIles 7-6060 • Chicago Phone: SPring 4-1200 • Telegrams: WUX Niles
In Canada: Curtis Lighting, Ltd., Leaside, Toronto, Ontario

Fluorescent luminaires provide 1.65 footcandles in downtown Paramount, Calif., at a cost to the city of 4% less per month.

Paramount Relights for Better Business

Paramount, Calif., with a population of 10,000 in 1950, is a Los Angeles suburb which was incorporated in January 1957. Because it is a contract-planned city with no bonded indebtedness, it offers an attractive location for industry.

Though the downtown street lighting system was less than ten years old and provided an 0.4 footcandle level, City Manager Dwight L. Hulse and Public Works Director Herbert W. Lehfeldt recommended to the City Council that the street lighting in the area be modernized.

Their recommendations were accepted and the Econolite Corporation of Los Angeles prepared specifications. General Electric two-lamp, six-foot fluorescent luminaires were ultimately installed.

A modified standard bracket was used so that existing standards could be utilized. A 15-degree up-tilt provided an additional two feet of mounting height per pole, placing the luminaires 26 feet above the pavement. The original 6,000-lumen incandescent lamps were replaced by Power Groove fluorescents which provide a total output of 18,600 lumens per fixture.

There are 98 units staggered at 60-foot intervals along Paramount Blvd. and Alondra Blvd.

The new installation provides 1.65 footcandles of maintained illumination—about four times as much as before—yet average billing has run about 4% lower according to officials of the city. The new units have a long light source rather than a pinpoint, reducing shadows and glare and providing greater "see-ability."

City officials and merchants alike have expressed satisfaction with the new units and are looking forward to an additional pickup in night-time business. The new lighting system is just another item that "helps us live up to our motto—city of progress," Mr. Hulse said.

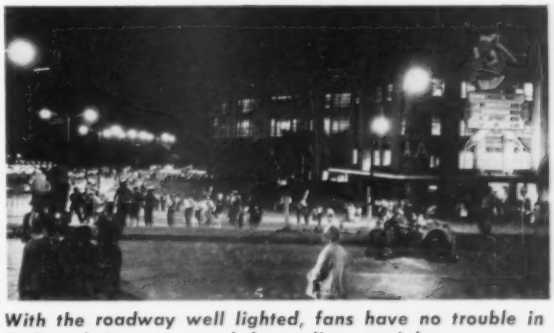
A Brighter Home for the Cleveland Teams

Cleveland's first mercury-vapor street lighting installation has wrapped the Municipal Stadium, home of the Cleveland Indians and the Cleveland Browns, in light. Previously, thousands of fans swarmed to the night-time home games under a cloak of darkness. The old 0.3 footcandle lighting level has been lifted to 1.5 footcandles.

Inquiring about a system that could meet these requirements, the Division of Light and Power received proposals for mercury-vapor lighting. Until now, the Division of Light and Power of the City of Cleveland had never employed mercury-vapor illumination anywhere in the city. Ballast and mountings seemed expensive and unsightly.

Examination of power consumption and photometric data, supplied by the manufacturers, decided the Division to install a Line Material Uni-Ballast system of thirty-six, 400 watt mercury-vapor lamps of 20,000 lumens each. The luminaires, mounted 30 feet up on wooden poles spaced 110 feet apart, were placed on the outsde curb of the roadway around the stadium. Cleveland fans can now walk to or from their cars in the complete security of high-level lighting.

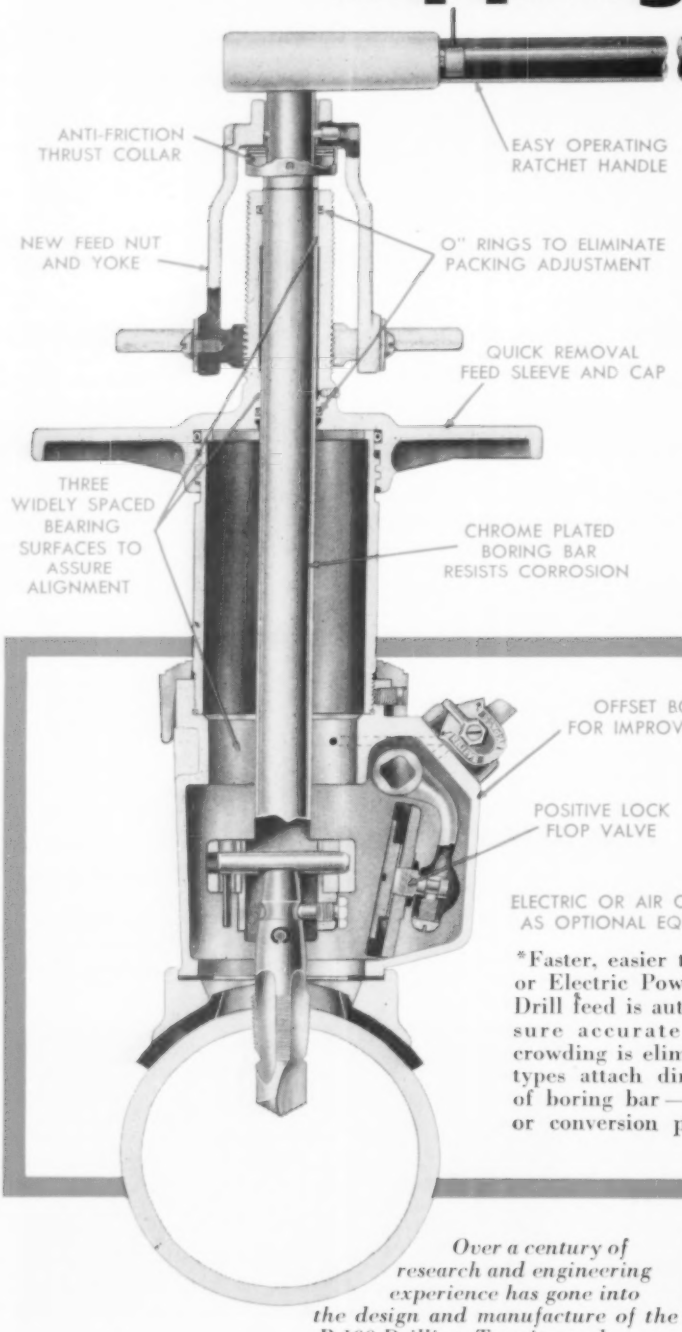
ANTHONY NICHOLS, *Street Lighting Engineer*
Division of Light and Power
Cleveland, Ohio



With the roadway well lighted, fans have no trouble in finding their way around the stadium at night.

operators like the ease . . .
the speed . . . the accuracy of the new

MUELLER® B-100 tapping machine!


ANTI-FRICTION THRUST COLLAR
EASY OPERATING RATCHET HANDLE
NEW FEED NUT AND YOKE
"O" RINGS TO ELIMINATE PACKING ADJUSTMENT
QUICK REMOVAL FEED SLEEVE AND CAP
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Is Baled Refuse the Answer?

Preliminary considerations show sufficient advantages for study and experimentation

By JEAN J. VINCENZ*
Director of Public Works

With all of the developments going on in the world of science and engineering, we can reasonably expect the emergence of some new and quite radical methods of refuse disposal to become a godsend to the municipal official. But can we wait for such startling new methods? Probably not.

However, something must be done in the line of better refuse disposal, for the rapid growth of metropolitan areas is putting public works officials right up against the gun. We thought we "had it made" with sanitary fill but cities' rapid growth has used up fill areas faster than expected.

Some large cities and groups of smaller communities look to well designed and strategically located incinerators for the answer, and for some this may be the correct solution. Others are turning to transfer stations to provide larger, more economical hauls to distant landfill areas. This too is a big help but is not enough. Although the material is compressed and larger and larger loads are being hauled to the disposal site, the volume of refuse increases more rapidly. When the public works official tries to locate and open another sanitary landfill site, someone within two miles of the site is sure to get up a protest petition signed by everybody who goes to the supermarkets within four miles of the proposed site. As a result premature gray hair sprouts around the big city halls all over the nation.

Here is an idea, although only fragmentary, that could prove helpful. Experimental tests in this area are meager, but with the resourcefulness evidenced by equipment designers and manufacturers and the ingenuity of public works officials in making things work, the idea might develop into something worthwhile.

Basically, the idea consists of three phases and utilizes the sanitary-landfill method of disposal.

A. Install a baler at the refuse transfer station that will really compress and bale, possibly with baling wire or metal straps, a quantity of refuse into a bale somewhere between the size of a bale of hay and a bale of cotton.

B. Use a low-boy or some other suitable trucking conveyance that can haul a *large* pay-load to the disposal site.

C. Stack the bales side by side and on top of each other in the ordinary method of stacking baled hay, using earth cover to maintain a sanitary fill.

Details

That's the basic idea; now for some details and a consideration of the problems involved. First, the compacting equipment must be strong and must compress sufficient refuse to do some real good. It must flatten cans and break bottles but items such as ice boxes, refrigerators, and bed springs would be pulled out for separate disposal. The compressing and baling operation would have to be fast enough to obviate excessive storage capacity for unbaled refuse. Large operations would require more than one unit.

The baling or binding material must be strong enough to retain the refuse in a compressed condition and enough must be used to prevent considerable loss during the handling process. Experiments indicate this is not a great problem.

At the disposal site, trenches with vertical sides at the starting side would be preferable, but not essential. A level bottom would also be advantageous. Bales should be stacked in an interlocking manner, with the height of stack varying with the width. The use of cells, their size being determined

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* Mr. Vincenz is Director of Public Works, County of San Diego, San Diego 10, Calif. He is the president of the American Public Works Association, and has been a leader among those who have lifted refuse sanitation into its present professional level. He was the first to use the phrase "sanitary fill" and was among those who first developed true sanitary standards for this method of refuse disposal in the United States.

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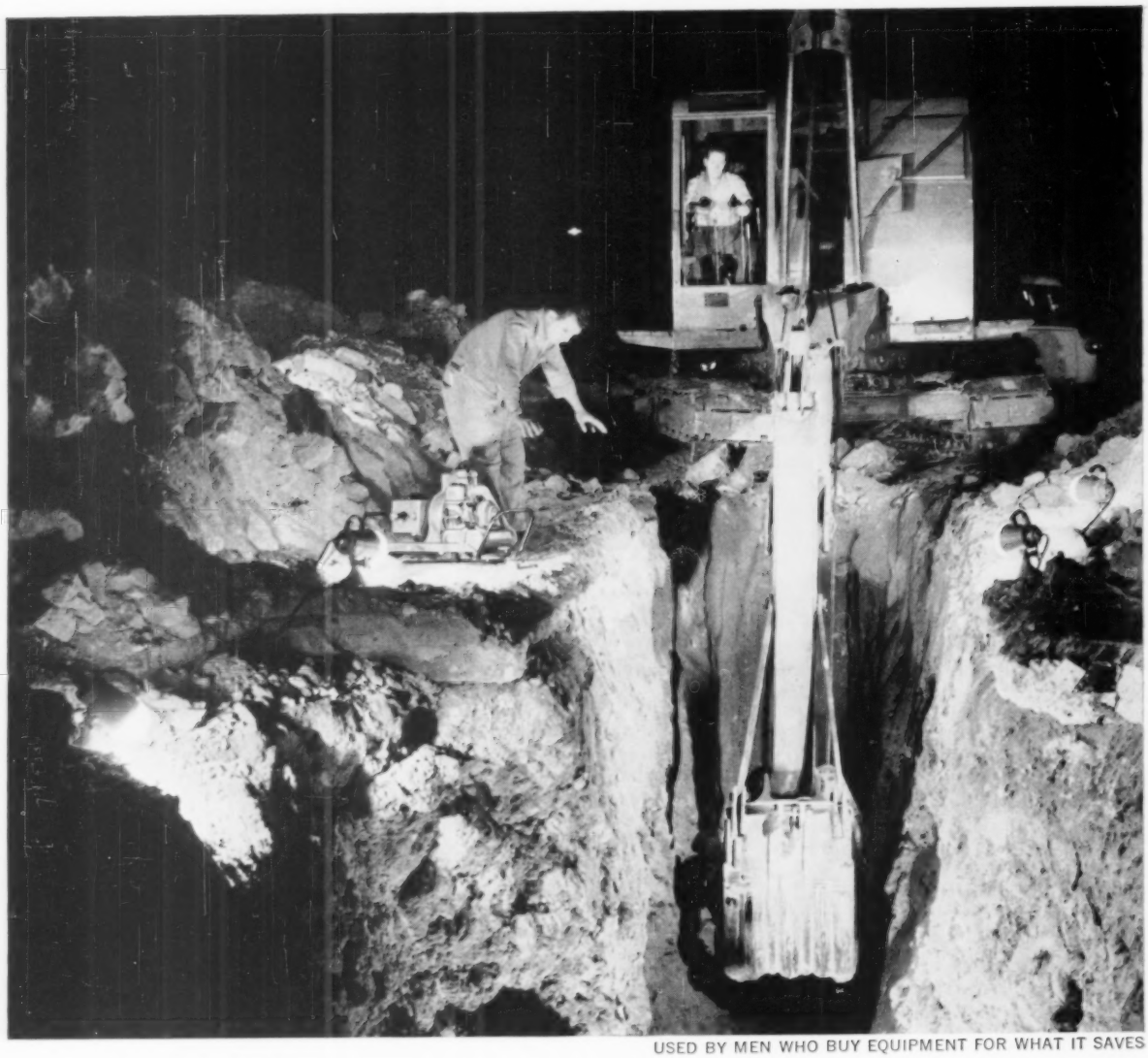

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by good practice and local conditions, would help in rodent control and fire prevention. The amount and timing of covering the stack with earth would also depend upon local conditions, good practice and proposed use of the fill site after completion.

Advantages

The obvious advantages include greatly reduced hauling costs, longer term of use for the disposal site, less blowing of paper at the site and a much neater appearance. But less tangible advantages may be more important, such as the ones that have to do with public relations and the mayor and city council. Such advantages would even be worth a little additional cost.

And this is not all. Baled refuse would permit orderly fills in depressed areas or gullies often found in city parks, playgrounds, and even school grounds (high schools require about 40 acres in some states today). Thus numerous small sites might be put to use much closer to or within the central city not only without objection but upon request.

Of course there are disadvantages too but these appear relatively minor. First and foremost, the design of compressors or compactors and balers that are reasonably rapid, efficient and not too costly has not yet been accomplished. Also, the hand-picked items such as refrigerators must also be disposed of but this is true in all forms of disposal.

Los Angeles County at one time tried baling refuse but gave it up, one reason being that the bulldozers had difficulty pushing the bales around. Whether stacking of bales was attempted is not known by the writer. However, that county's experience should be valuable as a starting point.

Besides the experience of Los Angeles County, Mr. Paul Maier, U. S. Public Health Test Station, Chandler, Ariz., reports some experiments in relation to compressors and balers but it is probable that nothing has been published on those tests. Manufacturers of compaction equipment for refuse collection will undoubtedly give some thought to the possibility of compaction and baling in the trucks. At present, that seems to be quite difficult, although certainly not impossible.

One of the most important phases of this suggested method is the ability to place greatly increased quantities of refuse at a given fill site and probably at considerably less

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There are now 90 boxes, including street boxes and those in schools, hospitals, industrial plants, old age homes and supermarkets. An alarm "pulled" is *automatically* transmitted to *all* fire personnel: by direct lines to fire station and fire officers' homes; by air horn to volunteer firemen. There's no delay . . . because no one has to speak a word!

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cost per ton of refuse, particularly if the stacking method as recommended is utilized. Another is to utilize disposal sites with a shorter haul. These sites would not be considered if conventional methods of sanitary fill were utilized. This may be just another pipe dream but then again it might start an increased amount of thinking on this urgent problem of refuse disposal for big cities and metropolitan areas. Also, it is possible that when some of the research men in the refuse collection and disposal field get through compiling all of the comparative costs, they will find that their city could afford to pay a pretty penny for one of these dreamy compressor balers.

D. C.'s Small Purchase Procedure

In November 1959 an addition was made to our Procurement Manual in the form of a revised procedure to permit agencies to obtain materials or services expeditiously to satisfy immediate operational needs, minor operating exigencies, and to obtain items required in relatively small quantities and infrequently purchased, as well as to tide the agency over pending delivery of materials from regular sources of supply. It is not intended as a substitute for planned procurement through quantity purchases on letter quotations or bids, nor does it permit agencies to purchase a commodity or class of commodity repetitively without solicitation of bids.

All departments and agencies of the District of Columbia are authorized to issue purchase orders direct to *contractors under Federal Supply Service and District Procurement Schedules*, vendors in the open market (non-contract), Department of Corrections Industry Division and the *Superintendent of Documents, U. S. Government Printing Office*, within the following limitations:

1. $500 in any single day from a single supplier in the purchase of repair parts and repair services, or where specifically authorized on a "Price List" associated with a District of Columbia contract.

2. $500 in any single day from the Department of Corrections, D. C., Industry Division, which shall be regarded as a mandatory source of supply for products and services listed in the Department of Corrections Price List of Industry Products and Services.

3. $100 in any single day from any single supplier on all other purchases.

All open market purchases should be made from manufacturers, distributors or wholesalers rather than retail stores. Sources of supply may be obtained from records of previous purchases of similar items, classified section of city telephone directory, catalog files, etc.

R. G. WESSELLS
Procurement Officer

Water-Sewerage Public Relations Program Goes into Action

The expanded public relations program of the Water and Sewage Works Manufacturers' Association started moving last month, after almost a year of preparation and pilot activity. Already, a good deal of publicity material is in the hands of the press, radio and television—or available to them.

In the initial assault, the WSWMA public relations committee and officers made the public relations firm of J. Walter Thompson available to the Water Pollution Control Federation during the recent WPCF Dallas, Tex., meeting. The firm's Dean Kearsh, in cooperation with Jack Durham, U. S. Public Health Service, Bob Gerber and Bob Canham of WPCF, Tom McNeil of the Eimco Corporation and Jim Corey of American Water Works Association sent news stories of the meeting to radio, TV and newspapers in Dallas and throughout Texas. WSWMA officials have expressed enthusiasm over the use of the material.

Available now by request from WSWMA are:

1. Three television scripts on water and sewerage subjects that can be adapted for use by any municipality.

2. A cartoon service offered monthly to local newspapers.

3. A contact service—to major national organizations—that will make water-sewerage leaders available on programs of most interest.

4. Stories about industrial problems and solutions for trade publication media—AWWA and WPCF assistance is being relied upon for this service.

Requests for these aids should be directed to Water and Sewage Manufacturers' Association, 165 Broadway, New York.

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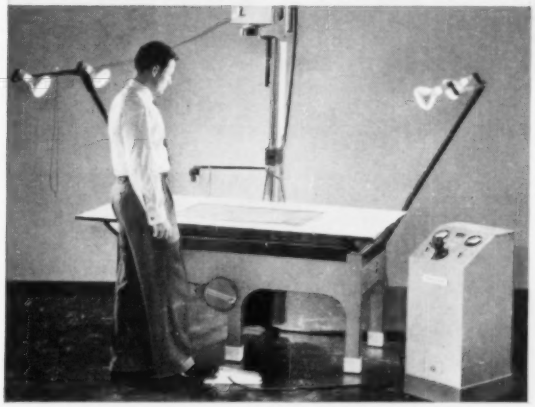
See how Recordak Precision Engineering Drawing System speeds engineering and drafting routines for Cook County, Illinois, Highway Dept., now engaged in a multi-million-dollar highway expansion program.



Mr. F. A. Cerwin, Record Administrator, looks over Recordak Microfilm file, now the *active* drawing file for Cook County Highway Department

FIRST STEP for Cook County was to put its tens of thousands of drawings on 35mm Recordak Microfilm, using techniques and quality-control methods developed by Recordak through years of research. The resulting negatives are needle-sharp images with remarkably uniform backgrounds. Mounting each frame in its own Filmsort aperture card completes job.

RESULTS: New "microfilm" drawing file takes 95% less space. Makes reference in film reader a snap. Ends need for costly reference blueprints that clog up the files! Reduced-size paperprints, when needed, are made by photographic, xerographic or electrostatic methods. Another advantage: a positive film copy of master negatives provides a security copy at negligible cost.

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Cypress and Dairyland own these two '59 Fords and '59 Chevrolet. Police Chief Martin W. Hansen is at far left.

One Police Department for Two Cities

By B. B. WESENBERG*
City Manager

Dairyland, Calif., the very successful pioneer of the completely agricultural municipal incorporation, has never had its own police. On January 1, 1959, a black and white patrol car with a City of Cypress Police Department shield on its doors entered the City of Dairyland. This was the start of complete police protection for the City of Dairyland under a contract with the City of Cypress.

Until this year, this two-square-mile dairy community contracted for law-enforcement service with the Orange County Sheriff's Department. The City Manager and Police Chief of the neighboring City of Cypress, a combination agricultural, industrial and recreational city of over 5½ square miles and 1,700 people, developed the contract and operational plan for this unique endeavor. Under this plan a $57,000-per-year, seven-man department provides 24-hour protection for both cities. Chief Martin W. Hansen was appointed Police Chief of both Cypress and Dairyland.

By utilizing a 44-hour work week the chief, one sergeant and five patrolmen are able to have a minimum of two men on duty on all but five shifts during the week. Monday through Friday the chief and inter-departmental secretary take care of the station business during the day shift. One patrolman is usually required on day patrol. At all other times, when the City Hall is closed, a telephone-answering service relays emergency calls to the Sheriff's Department, which dispatches the Cypress radio cars. If someone desires to contact the Department in person, he may arrange through the answering service to meet the sergeant or other officer at the police station. In this manner, all police personnel are able to spend a maximum amount of time in the field.

Patrol Districts

The two communities are divided into two patrol districts which overlap in the central business section of Cypress. Since the primary police problem is traffic enforcement, the one-man, marked patrol car system is used. However, reserve officers ride with the regulars on busy nights. There is excellent cooperation among all departments in the area whenever assistance is needed.

The department is fortunate in being able to utilize the Sheriff's Department crime laboratory, record bureau, dispatching service and jail.

Motorized equipment consists of one 1959 Chevrolet four-door sedan and two 1959 Fords. On order are two Dodge Dart, four-door sedan, police pursuit units with 345 hp V8 engines. Two cars are used for patrol and one for administration and investigation. Car equipment includes: three-way, double channel, Motorola radio (quick-call equipment for one car); Polaroid camera; shotgun; lighted, dashboard writing desk; plastic partition between front and rear seats; flares; CO_2 fire extinguisher; disposable blankets; traffic baton; two spotlights, etc. Portable radio equipment, small floodlights and radiological monitoring devices are also available when needed.

The contract had to be devised without benefit of a sample document from which to work. Since it was calculated that the amount of policing required by the City of Dairyland would be approximately equal to that which could be furnished by two men and one car, or slightly less than one-third of the available manpower and facilities of the Cypress Police Department; the cost of 24-hour protection to Dairyland was set at 31% of the total annual operating cost of the Cypress Department, plus $100 per month as Dairyland's additional share of the chief's salary. Whenever a periodic analysis of the service received by Dairyland would indicate that this percentage figure should be changed, this may be done with the consent of both parties. Dairyland also agreed to furnish one patrol car and to replace it whenever it was deemed advisable by the chief. Ownership of the car was transferred to Cypress until such time as the contract might be canceled.

Each month a detailed statement of total operating costs for the previous month is sent to the City of Dairyland. This statement includes the amount payable to the City of Cypress.

The contract states that the final

* Mr. Wesenberg is city manager of both Cypress and Dairyland, Calif.

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THE INSIDE STORY OF FALCON FLEET ECONOMY!

America's lowest-priced 6-passenger car—the New-size Ford, the Falcon, is also America's most economical car to operate and maintain!

It started with Experience Run, U.S.A., and the good news has been rolling in ever since! Falcon fleet economy—proved over every last mile of U.S. numbered highway—is now showing its stuff in regular fleet operations across the country.

Up to 30 miles on a gallon of gas can be obtained in Falcon fleet cars. Even the first fleet of cars assembled averaged 28.4 in Experience Run, U.S.A., under every conceivable condition! And this with first-rate, six-cylinder performance that brought cheers from veteran drivers.

You change oil only every 4,000 miles (twice the usual distance) because its Full-Flow oil filtering system filters *all* the oil *all* the way through. A *double-life* aluminized muffler is standard. The Falcon's brilliant Diamond Lustre Finish *never* needs waxing to keep it beautiful. And, of course, all Falcon savings *start* with the price . . . up to $124 *less* than other cars in its field.*

Falcon's fenders are bolted on . . . cost less to replace! The Falcon was designed, engineered and built with service experts consulted at every turn. Here's a sample of the kind of savings you get with Falcon replacement parts:

ITEM	FALCON	CAR "C"	CAR "V"	CAR "R"
Hood	$31.45	$63.50	$44.75	$39.00
Deck Lid	35.18	72.20	40.65	65.00
Distributor	17.00	21.75	27.50	23.50
Carburetor (1)	17.85	22.75	25.50	24.50
Front Fender	29.95	46.50	37.20	37.50

Service labor time is lower, too! The fleet's out and on the move—to your profit—thanks to the carefully worked-out Falcon service procedures. This means your Falcon fleet will be on the road longer . . . give you better service. Here are some examples of how Falcon cuts downtime:

OPERATION	FALCON	CAR "C"	CAR "V"	CAR "R"
Minor Engine Tune-up	1.5 hr.	1.9 hr.	N.A.*	2 hr.
Rear Axle Shaft Replacement	.9 hr.	1.7 hr.	N.A.*	2.5 hr.
Cylinder Head Gasket Remove and Replace	2.4 hr.	4.3 hr. (2)	N.A.*	2.2 hr.
Starter Motor Remove and Replace	.3 hr.	.5 hr.	N.A.*	1 hr.
Carburetor Assembly Remove and Replace	.4 hr.	.8 hr.	N.A.*	.5 hr.
Rear Brake Drums Replacement	.6 hr.	.8 hr.	N.A.*	.6 hr.

**Information not available*

15% less insurance cost in some instances is another Falcon saving. These savings are possible because the Falcon has been designed and built for minimum, quick, low-cost servicing.

Room for 6 . . . and all the luggage. Inside a Falcon, there's man-size stretch-out room . . . with no gearshift on the floor to displace the middle seat passenger. The trunk is a really roomy 23 cubic feet *plus*. Rear location gives you wide, flat floor space . . . low deck opening for easier loading!

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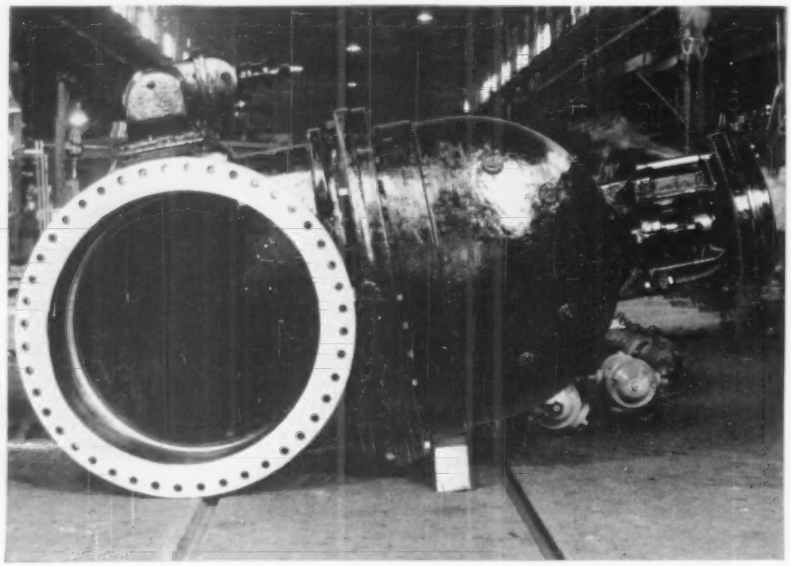

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THIS KENNEDY A.W.W.A. Valve, now in service, is a 48" KENNEDY fig. 561AEM non-rising stem flanged gate valve with enclosed cast steel cut teeth spur gears and 8" by-pass. Railroad tracks in the foreground indicate overall valve size.

Here's another practical demonstration of KENNEDY Valve's ability and experience in providing the right valve for the job, regardless of size.

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authority in the event of a dispute over the level of service, extent of duties, functions to be performed or discipline of officers is the police chief. This clause tends to safeguard the department against unnecessary political interference. Dairyland agrees to appoint the Chief of the Cypress Department as its own police chief.

Except for the one patrol car, Cypress agrees to furnish all equipment, labor, supervision, supplies and communications equipment.

Each officer or employee of the City of Cypress is deemed to be an officer or employee of the City of Dairyland at the time of performing any service for Dairyland.

Each city retains its own fines and forfeitures as they are collected by the county-operated court and transmitted to each by the Orange County Auditor.

By initiating the wise policy of above-average salaries, excellent fringe benefits (including state disability insurance, group medical insurance and O.A.S.D.I. retirement), good working conditions, in-service training, regular pistol range practice and high personnel qualification standards (each new candidate for patrolman must pass a sergeant's examination prior to appointment), the City of Cypress has been able to establish a superior police department. The acceptance of the plan by citizens of both participating cities has been considerably more enthusiastic than was anticipated. Few problems have arisen at any time. These two small communities have better police protection and at a lower cost than either one could have provided by itself.

This method is not recommended as a panacea for municipal service problems, but it could be used in many instances with notable success.

Research Program On Swimming Pool Sanitation

The National Swimming Pool Institute is launching a joint research and development program with the National Sanitation Foundation to conduct continuous tests of manufactured products used in the nation's swimming pool industry.

The program aims at joint certification of pool equipment based on tests to be made by the National Sanitation Foundation. The Foundation thus will perform a service equivalent to those of the Underwriters Laboratories in the electrical products field.

New John Deere 440 Crawler does more work "Single-Handed"!

The John Deere Crawler with Pilot Touch gives you an extra hand to *work* with, because *one* hand on *one* lever does all the driving—steer, stop, go, and reverse. The operator can give full attention to loader, winch, blade, or scarifier—producing more, and doing a better job in the bargain. Less effort is required—practically all clutch and brake footwork is eliminated.

Pilot-Touch control is an optional feature provided on both Diesel and gasoline "440" Crawlers. Any unit in the full line of John Deere Industrial Equipment is available on terms of the John Deere Credit Plan. See your dealer or write for the detailed information you need.

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Drive crawler with left hand—control loader bucket with right—cut cycle time!

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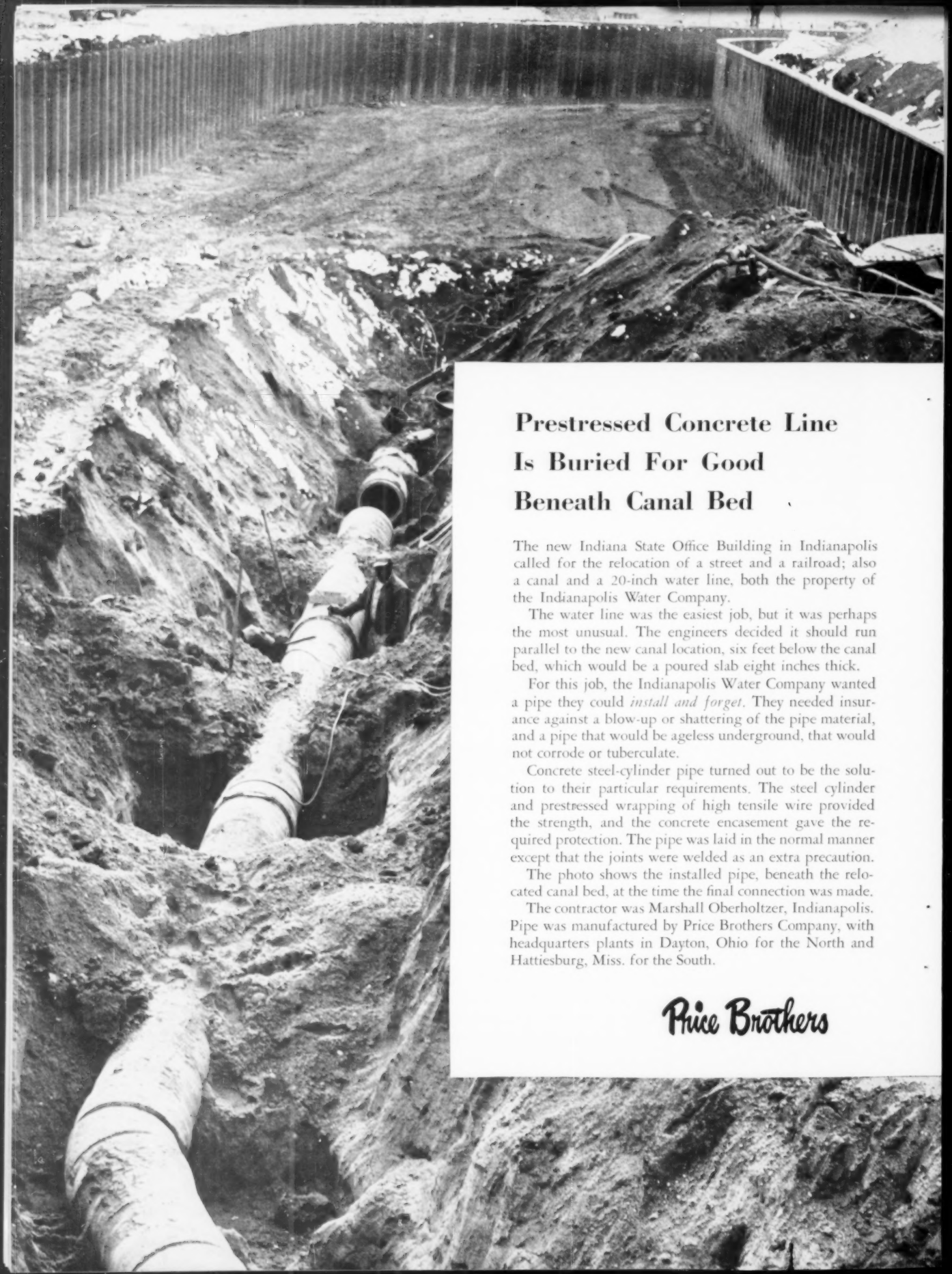


Prestressed Concrete Line Is Buried For Good Beneath Canal Bed

The new Indiana State Office Building in Indianapolis called for the relocation of a street and a railroad; also a canal and a 20-inch water line, both the property of the Indianapolis Water Company.

The water line was the easiest job, but it was perhaps the most unusual. The engineers decided it should run parallel to the new canal location, six feet below the canal bed, which would be a poured slab eight inches thick.

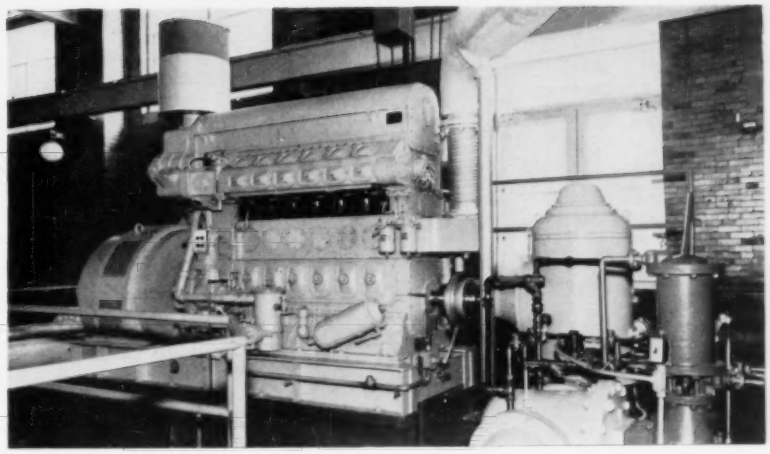
For this job, the Indianapolis Water Company wanted a pipe they could *install and forget*. They needed insurance against a blow-up or shattering of the pipe material, and a pipe that would be ageless underground, that would not corrode or tuberculate.

Concrete steel-cylinder pipe turned out to be the solution to their particular requirements. The steel cylinder and prestressed wrapping of high tensile wire provided the strength, and the concrete encasement gave the required protection. The pipe was laid in the normal manner except that the joints were welded as an extra precaution.

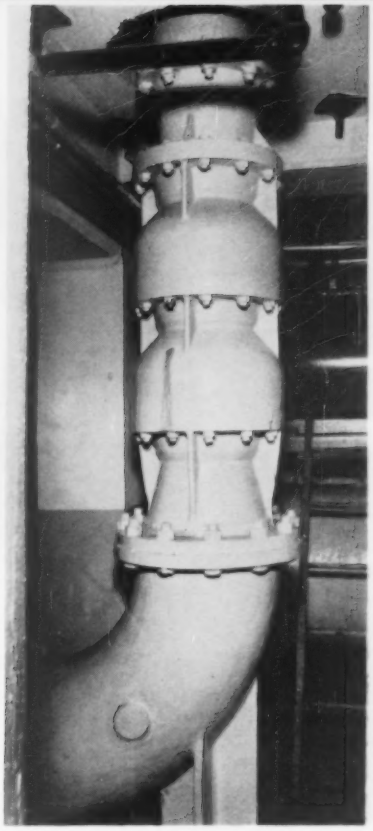
The photo shows the installed pipe, beneath the relocated canal bed, at the time the final connection was made.

The contractor was Marshall Oberholtzer, Indianapolis. Pipe was manufactured by Price Brothers Company, with headquarters plants in Dayton, Ohio for the North and Hattiesburg, Miss. for the South.

Price Brothers



Elyria, Ohio, utilizes a single engine to drive one high-service pump and to generate electricity for two raw-water pumps and other electrical equipment.



The standby high-service pump, located between the operating floor and a pipe elbow leading to the intake header, takes no more room than a vertical pipe.

Diesel Standby Performs Double Duty

Elyria, Ohio, uses one engine to handle both raw-water and high-service pumping during emergency periods

By **NORMAN HUMASON**
Plant Superintendent

Conversion from steam to electrictly in 1955 increased both capacity and efficiency at the Elyria, Ohio, water purification plant and pumping station—but it also meant full dependence on electric power supply via utility transmission lines. To provide protection against interruption of electric power, our local officials in consultation with Havens and Emerson, consulting engineers of Cleveland and New York, decided to install a standby diesel.

To maintain plant operations during a power interruption, provision had to be made for varied services. Four Layne pumps, driven by two 75-hp and two 50-hp General Electric motors lift raw water from Lake Erie to the purification plant. Four Allis-Chalmers pumps, with capacities of 7 to 8 mgd each and powered by 450-hp motors, pump the treated water some 11 miles to the distribution system and three 1,000,000 - gallon elevated tanks. Electric power is also utilized for lighting, instruments, and a variety of motor-driven equipment.

To avoid installing several emergency units or one very large engine-generator combination, our engineers decided to install a smaller high-service pump and one medium-sized power source. They reasoned that the volume of water put out by one of the big pumps was not essential in any conceivable emergency and to date this has proven to be the case.

To do this job we selected a six-cylinder Fairbanks-Morse opposed-piston diesel. It is rated at 450 hp at 1200 rpm. At the flywheel end the diesel drives directly a 175-kilowatt, 3-phase, 60-cycle, 480-volt alternator with direct-connected 3 kw exciter. This provides enough electric power to run both of the smaller raw-water pumps plus necessary lighting, instrumentation and small equipment operation. The other end of the shaft drives an 18-inch Fairbanks - Morse Pomona turbine pump through a Falk coupling and a 1.5-to-1 ratio F.M. right-angle speed-increasing gear.

Originally the pump provided about 5.5 mgd at 105 psi when pumping alone, sufficient to handle emergency requirements. Completion of a new 48-inch line half-way to town has increased the output to about 6.0 mgd.

The pump requires little space. From the end of the high-service suction header, a pipe elbow curves up to the suction end of the pump. The pump itself extends up to the operating floor above. The intake line contains a Pratt rubber-seated butterfly valve with Philadelphia Gear Works Limitorque control, while discharge to the high-service header is through a 12-inch Chapman cone valve.

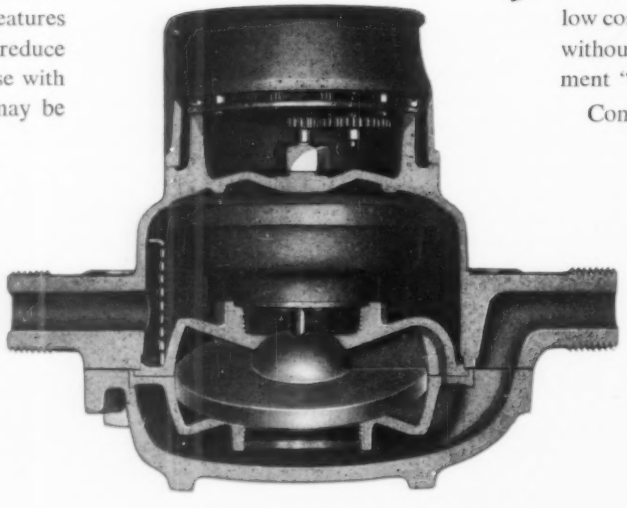
We have experienced no emergencies since installing this equipment, but did use it twice to carry the load when electric power was

What Every WATER SUPERINTENDENT Should Know About

AMERICAN METERS

...Simplicity

Unequalled simplicity and accessibility of working parts are features of American Meters that reduce maintenance costs. The ease with which the internal gears may be lifted from their bearings or the disc chamber taken from its seat and opened is a revelation to anyone who has not seen it. And, best of all, you can't put the parts of an American Meter together incorrectly. They just won't fit in the wrong place.



American Meters have full interchangeability of individual parts, which permits the low cost rebuilding of worn meters without buying expensive replacement "unit assemblies".

Combine all this with the finest materials and workmanship and you have the reason why water superintendents who know American Meters continue to purchase more, year after year.

All the cost-saving features of American Meters are described in Bulletin 58. We will be glad to mail you a copy on request.

BUFFALO METER COMPANY
INCORPORATED

2902 Main Street **Buffalo, New York**

not available once for eight hours and once for six hours during relocation of power lines. However, the equipment has played an active role in various ways.

In the spring of 1958 we used the diesel-pump combination as a second high-service pump, thereby eliminating the high demand charge for electricity for relatively small use of a second big electric-motor-driven pump. During these periods pumping volume averaged between 8.0 and 8.5 mgd—just above capacity of one large pump. By using the diesel from three to six hours a day when the 8.0- to 8.5-mgd demand existed we saved about $1.50 per million gallons pumped, or about $300 per month. Although the temptation is great to utilize the standby equipment in this manner throughout the year, we refrain from doing so. Its most important function is standby service, and daily use and normal maintenance procedures might detract from its readiness in time of emergency.

We do, however, run the unit at least once a week throughout the year. This is more than the perfunctory test many operators think sufficient for a standby unit. Each Saturday it is run as the sole high-service unit on the line. Demand during this period is somewhat greater than pump capacity, permitting a change of water in the three elevated storage tanks in the city.

The new unit is virtually self-sufficient, with governor, lube-oil cooler, jacket-water heat exchanger, fuel, lube and air filters all mounted on the engine. A small compressor, belt-driven by either an electric or gasoline engine provides starting air. A 10,000-gallon underground fuel-storage tank insures an abundant fuel supply.

Our purification and pumping plant is located 11 miles north of Elyria on the shore of Lake Erie. Recently the plant site was taken into the City of Lorain by annexation procedure. Besides serving the approximately 40,000 residents of Elyria, we also supply water to the towns of Ridgeville, Amherst, Clearview and several other small communities. In all, more than 60,000 persons depend upon our plant for water.

In the future, should the capacity of the emergency pump become too small, a separate engine could drive the existing generator or another unit. This would relieve the engine of the generator load, and with proper adjustments would increase emergency capacity to 7 mgd.

Easy starting, low in cost, and just right for an 80 lb. breaker . . .

JAEGER ROTARY "75"

Easy starting in coldest weather because it has no pistons to drag. Costs less than the reciprocating model it replaces, yet runs smoother, delivers much cooler air, has fewer parts. Fully equipped. Big tool boxes, automatic blow-down valve. Ask your Jaeger distributor or send for Catalog.

75 cfm operates a heavy breaker at top efficiency.

The Jaeger Machine Company, 505 Dublin Ave., Columbus 16, Ohio

75 • 85 • 125 • 250 • 365 • 600 • 900 CFM ROTARY COMPRESSORS

only TRUTH

will PROTECT your community

Too often . . . the public has been told only of the role played by the Polygraph in solving major crimes.

Your community needs the modern KEELER Polygraph for investigations that are daily routine in every law enforcement agency, such as the cases cited below:

"Suspect Has Alibi" . . costly interstate checking eliminated when polygraph interrogation verified truth of suspect's statement.

"Seven Suspects Picked Up" . . polygraph examiner secured confession from third man. Community saved up to 100 hours of police investigation.

"Captured During Burglary" . . skilled polygraph interrogator secured names of accomplices and stolen property was recovered, valued at many times the cost of police department's polygraph.

Let us send you the "TRUTH", a complete history of scientific lie detection plus case histories that are important to every community.

Write today! 6-35.6

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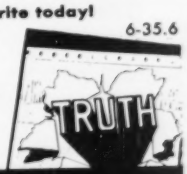

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STREET and PARK

Type 48-F

Refuse Receptacles

Tarco **"Paragon"** receptacles have gobbled litter and trash **since 1883. Rugged** construction: welded, heavy gauge steel. Large capacity. Locking removable hoods. **Two big doors,** vertically hung, open and close without springs. **Safe to use** . . . no scraped fingers. Stainless steel feet. Baked enamel finish. Decals. Innerliners.

TARRANT MFG. CO.
23 JUMEL ST.
SARATOGA SPRINGS, N. Y.

YOU *could* VOTE ON ADDING MACHINES! . . . and they *would* add correctly . . . BUT! . . . you would *not* have an accurate election . . . because adding machines are *not* AUTOMATIC VOTING MACHINES . . . which not only add votes immediately, accurately, reliably and safely . . . but which also prevent voter error and spoiled ballots . . . which prevent accidental or intentional ballot marking contrary to law . . . and most important, protect election integrity by assurance of ballot secrecy and full protection against fraud.

SIXTY CONTINUOUS YEARS OF ELECTION EXPERIENCE ARE BUILT INTO THIS AUTOMATIC VOTING MACHINE

PRODUCTS FOR THE PUBLIC GOOD

AUTOMATIC VOTING MACHINE

division of Rockwell Manufacturing Company

Jamestown, N. Y.

One Tractor Powers 30 Grounds Maintenance Tools!

The versatile 6.6HP Gravely Tractor powers a complete, year-round maintenance system!

You cut costs two ways: (1) You buy only ONE power unit—with a choice of 30 quickly interchangeable Tools; (2) The Gravely does your jobs faster, easier, more economically!

Standardize on Gravely—as many cost-conscious cities have! Gravely gives you more power at the Tool through direct, all-gear Drive. Simple, precise control, low-cost dependable power for year-round work. Tools that do your jobs more efficiently!

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Find out why and how Gravely does the job best. Write TODAY for "How to Cut Grounds Maintenance Cost" and Gravely Catalog!

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GRAVELY TRACTORS, INC.

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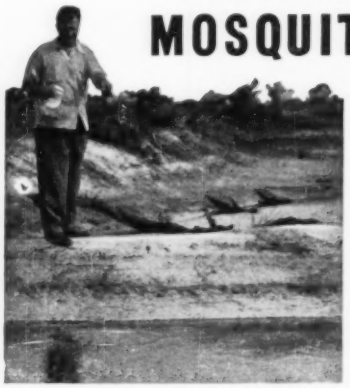

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Save Time, Labor, Money

NO SPECIES IMMUNE

100% Kill in All Breeding Places Swamps, Canals, Catch Basins, Rain Pools, Ditches

Just toss them into infested water, capsule dissolves in minutes, spreading a lethal film in all directions on the surface. One Tossit larvicides 100 to 750 feet of water.

CLEAN, SAFE, EASY TO HANDLE

50 TOSSITS LARVICIDE AN ACRE OF BREEDING GROUND OR 50 POOLS IN MINUTES

IDEAL FOR HARD TO REACH AREAS

ONE MAN WITH TOSSITS DOES THE WORK OF FIVE WITH HAND EQUIPMENT

Write today for prices and literature

WYCO INTERNATIONAL

Sole Distributors for Wyco Inc.

4811 Carnegie Avenue **Cleveland 3, Ohio**

The City Tells Its Story

TOWN AFFILIATION

Edited by PAN DODD EIMON

Municipal officials play key international roles:

U. S. Cities Have "Twins" in Other Countries In Community "People-to-People" Programs

In a realistic effort **Worthington, Minn.**, and *Crailsheim, Germany*, the cities of **York, Pa.**, and *Arles, France*, **Tucson, Ariz.**, and *Trikala, Greece*; **San Diego, Calif.**, and *Yokohama, Japan*, are working to know one another and, through this mutual effort, to further international understanding and world peace. These "sister cities" or "twins" are four pairs of the more than 100 affiliated communities vitalizing the United States' "People - to - People" programs.

During 1960, the Committee on International Municipal Cooperation of the American Municipal Association is calling for 3,000 such affiliations! Your city, be it large or small, can enlist in this municipal phase of the Eisenhower-launched, State Department-backed program.

The aim of town affiliations, the American Municipal Association (AMA) says, is "to build a massive program of communication between Americans and citizens of other lands, to establish lasting two-way relationships from which international friendship . . . can grow. The technique is . . . direct, people-to-people as distinct from official government contacts."

Because people all over the world "live in groups," and "these clusters or communities have common characteristics," AMA continues, towns and cities "are the natural unit for affiliating with a counterpart overseas."

A "twin" may be selected because of a common name, heritage, physical characteristics, common manufacturing or cultural or educational interests. The selection is made by a committee, usually headed by the mayor.

The program of activity, basically, involves: *exchange* of people (city officials, students, club representatives, tourists, teachers), of products, and of information by the sister cities and the *study* of the sister-city—its life, culture, problems, and strengths via classes, exhibits, club meetings, concerts, plays, parades, and city hall affairs.

Because AMA is the official body, designated to handle town affiliations, it offers—without charge to your community — special helps. These include: 1) a how-to-do-it booklet that tells how to organize, lists dozens of possible projects, 2) help in selecting a "twin" overseas (AMA receives the requests of overseas cities which want affiliations and keeps tab on which cities abroad are already affiliated), 3) staff assistance with any phase of your city's program, and 4) clearance

Robert McLaughlin, sketched in the chain link above, is president of the Board of Commissioners, City of Washington, D. C., and has served as chairman of the committee, of the American Municipal Association, sponsoring town affiliation.

Darien, Conn., gets an elephant for its zoo from its sister city, Mercara, India.

Boston, Mass., welcomes Mayor Rebecchini of Rome, Italy, with a parade.

Manheim, Pa., is proud of exquisite glass from Mannheim, Germany.

Concrete streets like Crescent Drive are a joy to motorists

425 blocks paved in 8 years

Duncan, Oklahoma, chose concrete to get streets good for 50 years and more!

Cities and villages everywhere are finding that concrete is the popular and economical answer for street improvement programs. Duncan, Oklahoma, for example. Early in 1951 its Chamber of Commerce appointed a committee. They worked with the mayor and city commission on a master paving program for Duncan streets.

They studied pavement costs and life expectancy, learned that concrete is the one pavement with load-bearing strength that can be computed mathematically to match future traffic, last 50 years and more. Records showed that upkeep costs for concrete run as much as 60% lower than for asphalt.

All this was explained to Duncan property owners at special meetings. And with enthusiastic approval from cost-conscious taxpayers, the committee's decision was unanimous for concrete! Since then it has been concrete all the way for Duncan.

City officials and Duncan citizens are proud of their modern concrete streets . . . clean, bright and attractive. Smooth-riding. And with the extra safety of concrete's skid-resisting surface and high night visibility.

Thrifty concrete is the preferred pavement for streets everywhere, with true economy for taxpayers, both today and in the future. If you are planning a street paving program, write for free literature—technical and non-technical. Distributed only in the U.S. and Canada.

PORTLAND CEMENT ASSOCIATION

Dept. A2-4 33 West Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of concrete

MODERN Concrete

These men boost town affiliations. They are, left to right, Mayor Charles Dail, San Diego, Calif., Secretary of State Christian A. Herter, Patrick Healy, Jr., executive director of the sponsoring American Municipal Association, and Robert Doerr, councilman and former mayor of San Jose, Calif.

with appropriate authorities in the U. S. and overseas.

Town affiliation programs *are* municipal public relations in the highest and fullest sense. The entire community takes part. The more groups and individuals participating, the more widespread the benefits. In addition to the more obvious results (growth into world citizenship, a part in preserving world peace, the stretching of mental horizons, new contacts, sound community publicity), here are the "local, community benefits" recorded by the village of **Western Springs, Ill.**, after its "Rugeley Day" honoring *Rugeley, England*, last spring.

The local newspaper reported, "Remaining with us, too, as a result of this city affiliation project, are other concrete and lasting benefits.

"The first of these is a sense of togetherness and of real accomplishment by the community.

"Secondly, we have had the satisfaction of materially assisting our national government in promoting the People-to-People program.

"Thirdly, *there now exists a new high water mark in the relationship between businessmen, residents, and local government.*

"And, fourth, there has been an acceleration of the village's beautification plan as a result of the business houses' program of decorating windows and store fronts with attractive displays and flower boxes in preparation for this occasion."

Few cities—or city officials—can afford to turn down such municipally-appealing goals.

What Cities Do

Here is a sampling of activities in communities which already have an overseas "sister." **Denver, Colo.**, staged a $25-ticket French fashion show, raised enough money to send a Denver student to France and to buy equipment for the Medical Center of sister-city, *Brest, France*. Twenty-one organizations in **Clearwater, Fla.**, have swapped gifts and goodwill ambassadors with their counterparts in *Nagano, Japan*.

Mayor Earl Eller, **Asheville N. C.**, heads a five-man committee arranging affiliation for his city. **Monrovia, Calif.**, will donate a bust of James Monroe to go into the city hall of its twin, *Monrovia, Liberia*. The Symphony Orchestra of **Boston, Mass.**, played in *Strasbourg, France*, in December and the Strasbourg orchestra will play in Boston.

Mayor Joseph Greco of **Napa, Calif.**, led a delegation of his citizens to Italy last summer to personally select a sister community in that country. The **York, Pa.**, collaboration with Arles, France, reached a climax when York exchange teacher, Miss Margaret Boltz, married the mayor of Arles, Charles Privat.

Jamestown, N. Y., is the only U. S. city with a Finnish affiliation, the City of *Jacobstad*. **Cortland, N. Y.**, has *Peshawar, Pakistan* as its "sister." **Boulder, Colo.**, has a relationship with *Meppel, The Netherlands*.

For the "how-to" booklet on Town Affiliation, write to: American Municipal Ass'n., 1612 K. Street NW, Washington 6, D. C. For news on what other cities are doing, write to: Civic Committee, People-to-People Program, 183 Essex Street, Boston, Mass. Photographs on these pages are from the AMA. Drawings used are by Jos. Stern and appeared in the "Newsletter" of the Civic Committee, Boston.

York, Pa., citizens learn about Arles, France, through a cultural exhibit.

Tucson, Ariz., and Trikala, Greece, exchange official proclamations.

San Jose, Calif., soon marks its third anniversary with Okatama, Japan.

USCOFLOW PIPE

How to lay 800 extra feet of pipe an hour

New Indiana Golf Course installs UscoFlow water lines 5 times faster than with metal piping!

Two men, inexperienced in pipe laying, recently installed a water line at the rate of 1000 feet per hour! It happened at a new Indiana golf course – and it's happening in golf courses, parks and along parkways throughout the country. It's possible because: UscoFlow Pipe, with UscoFlow elbows, tees and fittings (the most complete line on the market), betters the installation speed of metal pipe by an average of three to five times.

An UscoFlow installation is permanent and leakproof. For only UscoFlow has an "interference" fit, a feature that assures positive bond. Clamps are never necessary.

UscoFlow pipe is so light in weight, one man easily handles several 20′ lengths. It's so flexible, it bends to the contour of the ground, eliminating many costly angle fittings. When a fitting is necessary—for a "T" or sharp angle —an ordinary wood saw cuts through UscoFlow in 30 seconds... simple, quick cementing assures watertight joints without threading. UscoFlow's smooth, frictionless inner surface carries greater water volume, too.

UscoFlow won't corrode... resists impact and flow-reducing scale. Ask your "U.S." Distributor about UscoFlow Plastic Pipe and save on repairs and new installations.

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

Water Main Tapping Fees

Charges made by water utilities for tapping the water main are relatively minor parts of most water rates. But they do represent an important detail that deserves attention. They should be large enough to insure that the water works will receive sufficient revenue to meet costs, but not so large that they will discourage connections. Each connection does represent a new customer, and if the rate schedule is prepared correctly, new business will be encouraged.

In general, the tapping fee depends upon the size of the tap, plus other incidental charges. Probably the easiest method of illustrating it is to quote from those in actual use.

Clay Center, Kan., requires each applicant to obtain a permit, give the location of the property to be served, and the use to be made of the water. Fees vary from $45 for a ¾-inch service line with a ⅝-inch meter to $60 for a 1-inch service line and a 1-inch meter. All larger installations are charged at actual cost. Any installation outside the city limits requires an added fee of $10. For this, the Utilities Department will furnish and install a maximum of 60 feet of service line from the main to the point of connection. The Utilities Department will excavate from the main to the meter box or curb stop at the property line, install the corporation cock, curb stop, meter (up to 1 inch) with meter box enclosure, and Type K copper tubing. The property owner is required to install a stop-and-waste cock in his supply line.

Columbia, Mo., makes charges that vary from $45 for a ¾-inch service pipe to $75 for a 2-inch pipe. For larger sizes, the city's Department of Water and Light charges actual cost of labor and material, including meter box, but exclusive of the meter, plus 10%, but in no case less than the amounts listed above. The city also charges $7 for cutting and repairing concrete sidewalk if this should be required.

Bristol, Va., makes a tapping fee of $50 for ¾" service complete to the property line. One inch and larger are actual cost. However, the meter is not included in computing cost.

Jackson, Tenn., makes tapping fees varying from $50 for a ¾-inch line to $200 for a 2-inch, and negotiates special contracts for larger. This includes extension of the main, if necessary, for a distance of not more than 100 feet, laying a service line, providing and installing a meter.

Fayetteville, N. C., charges fees varying from $40 for a 1-inch lateral to $160 for a 4-inch as a maximum. The tapping fee is 70¢ per foot of property abutting the street plus the cost of material and labor but in no case shall the fee be less than the basic tapping fee.

Austin, Tex., has a detailed set of charges for the tap and the service deposit. These charges are as follows:

Meter Size	*Tap*	*Service Deposit*
⅝"	——	$ 5.00
¾"	$50	15.00
1"	65	20.00
1¼"	80	30.00
1½"	90	40.00
2"	130	62.50
3"	cost*	100.00
4"	"	200.00
6"	"	400.00
8"	"	800.00

* Estimated cost.
Minimum Commercial Deposit $10.
Sewer Connection $50.
Charges include cost of cutting pavement.

In the last analysis, as one veteran water-works manager said, "We don't intend to have our old customers finance connection charges that ought to be carried by the new. Each barrel ought to stand on its own barrelhead."

ATHOL, MASS.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 1,000	Minimum
Next 4,000	$0.30
Excess	.15

A cash discount of two cents per 100 cubic feet is allowed if bill is paid before the 20th of the month in which bill is rendered. Athol has no out-of-town users.

Minimum Quarterly Rates

Meter Size (in inches)	*Charge*
⅝ & ¾	$4.50
1	7.50
1½	10.00
2	13.00
3	15.00
4	24.00
6	50.00

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$5.10
15,000	2,000	7.50
30,000	4,000	13.50

General Data

Population served		12,000
Miles of mains		60
Services	*Number*	*% Metered*
Domestic	2,814	99
Commercial	51	100
Supply—Reservoir		
Treatment—Rapid sand filtration		
Plant capacity		1.5 mgd
Average demand		1 mgd

Remarks

1. Utility provides no part of service line.
2. Utility provides none of the cost of new main extensions.
3. The Department of Public Works operates and bills for both water and sewer services.
4. Automatic billing equipment is not used.
5. Water rates were last revised in 1956, when they were increased by 50%. Water use was not affected, and further adjustment is not needed at present.
6. There is no charge for fire services or hydrants.

EUGENE J. TEIR
Superintendent
Department of Public Works
Athol, Massachusetts

MANCHESTER, N. H.

Rates Per Quarter

Cubic Feet		*Per 100 Cubic Feet In City*	*Outside*
First 2,000	(Min.)	$3.00	$5.00
Next 88,000		.15	.16
" 180,000		.11	.12
Excess		.07	.08

Minimum Quarterly Rates

	In City	*Outside*
For all meter sizes	$3.00	$5.00

Fire Protection

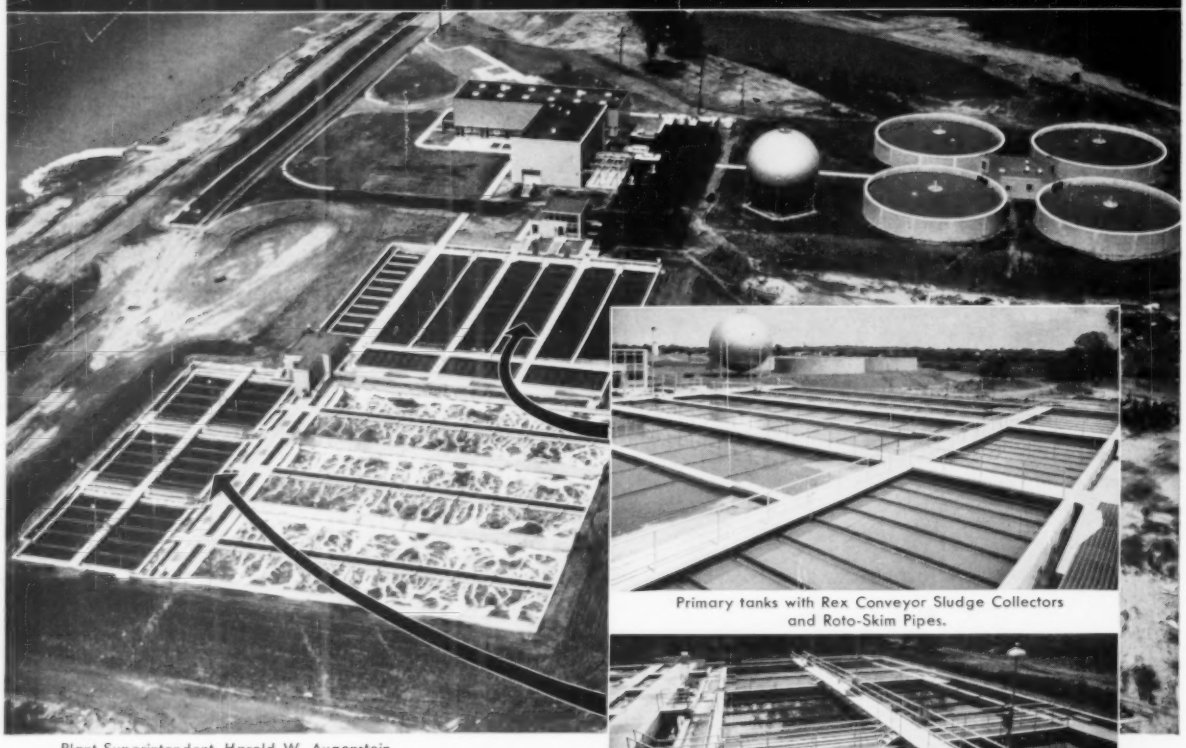
Public: No charge is made in the city for public fire protection. Hydrants are charged at the rate of $50 per hydrant per year outside.

Private:

Connection Size (in inches)	*Annual Charge*
4	$40.00
6	84.00
8	120.00
10	236.00
Over 10	No charge

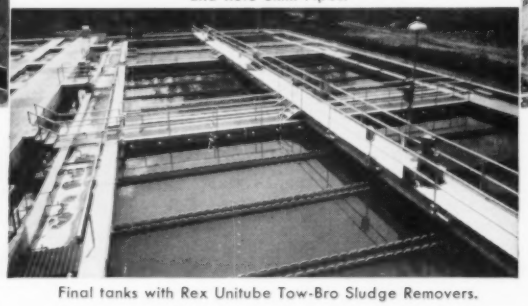
(Continued on page 169)

MODERN AS TOMORROW



Plant Superintendent: Harold W. Augenstein
Consulting Engineers: Consoer, Townsend & Associates, Chicago

Primary tanks with Rex Conveyor Sludge Collectors and Roto-Skim Pipes.



Final tanks with Rex Unitube Tow-Bro Sludge Removers.

HAMILTON, OHIO, PLANT

Planned For Peak Performance

The Hamilton, Ohio, new split activated sludge sewage treatment plant is a tribute to sound planning that considered not only today's but tomorrow's requirements. In anticipation of a substantial population and industrial expansion, the planning team designed a plant that would provide maximum efficiency with adequate reserve capacity for future growth of the community.

The new plant has a designed average flow of 12 m.g.d., with a maximum designed flow of 18 m.g.d. handling both municipal and industrial wastes. In the design of the Hamilton plant, maximum utilization of available area was accomplished through a compact arrangement of the treatment units by using common wall construction throughout.

The grit chambers, equipped with Rex Chain and Bucket Grit Collectors, and the rectangular primary tanks, with Rex Conveyor Sludge Collectors and Roto-Skim Pipes, are neatly grouped with the rectangular aeration tanks and the three square final tanks. Future expansion of these units with a minimum of cost is guaranteed.

In the final tanks, Rex Unitube Tow-Bro Sludge Removers assure maximum flexibility in operation ... both today and for years to come. With more positive and general removal of sludge, the Tow-Bro provides ample facilities for efficient operation under varied conditions.

Rex Waste Treatment Engineers are available to help design and select equipment for modern plant performance as at the Hamilton, Ohio, plant. For complete information, write CHAIN Belt Company, 4648 W. Greenfield Ave., Milwaukee 1, Wisconsin.

REX®

CHAIN BELT COMPANY

Specialized Equipment for the Effective Treatment of Water, Municipal and Industrial Wastes.

Typical Quarterly Costs

Gallons	Cubic Feet		Charge In City	Charge Outside
9,000	1,200	(Min.)	$3.00	$3.00
15,000	2,000	"	3.00	5.00
30,000	4,000		6.00	8.20

General Data

Population served	87,516
Miles of mains	270
Services (100% metered):	
Domestic	17,810
Commercial	59
Supply—Surface	
Treatment—Chlorination only	
Plant Capacity (pumping capacity):	
High pressure station	7 mgd
	6½ mgd
	12 mgd
Low pressure station	10 mgd
	8½ mgd
Average demand	11 mgd

Remarks

1. Utility provides service line to property only.
2. Utility provides none of the cost of new main extensions.
3. The Manchester Water Works does not operate sewer services, nor are sewer services billed for.
4. Automatic billing equipment is not used.
5. Rates were increased by 25% in 1952. Water use was not affected. Further adjustment is under consideration.

JAMES A. SWEENEY
Superintendent
Manchester Water Works
Manchester, New Hampshire

NEEDLES, CALIF.

Rates Per Month

Cubic Feet		Per 100 Cubic Feet
First 5,000*		$0.09*
Next 200,000		.06
" 300,000		.05
" 400,000		.04½
Excess		.04

*All amounts of water in this table are in addition to the allowance listed in the table of service charges (below) and all charges are in addition to the service charge.

Monthly Service Charge

Meter Size (in inches)	Allowance (cubic feet)	Charge
⅝ (house)	2,800	$3.95
⅝ (comb. house and apart.)	3,800	5.40
1	6,800	9.75
1½	9,800	14.25
2	12,800	18.75
3	28,800	42.75
4	50,000	75.00

Users outside the corporate limits of Needles pay $1 additional per inch of meter size or portion thereof per month.

Typical Monthly Costs

Gallons	Cubic Feet	Charge
3,000	400	(Min.) $3.95
5,000	667	" "
10,000	1,333	" "

General Data

Population served		5,000
Miles of Mains		45
Services	*Number*	*% Metered*
Domestic	1,200	90
Commercial	150	100
Supply—Wells		
Treatment—None		
Plant capacity		5.8 mgd
Average demand		2.9 mgd

Remarks

1. Utility provides service line to property only.
2. Developer must bear the entire cost of new main extensions.
3. The Public Works Department of Needles operates both water and sewer services.
4. Automatic billing equipment is not used.
5. Water rates were increased by 55% in 1954. Water use was not affected, and further adjustment is not needed at present.

JOHN R. SMITH
Director of Public Works
Needles, California

ST. PAUL, MINN.

Rates Per Month

Cubic Feet		Per 100 Cubic Feet In City	Outside
First 50,000		$0.21	$0.30
Next 450,000		.15	.15
Excess		.10	.10

Demand Charge

Meter Size (in inches)			Charge In City	Outside
⅝	(per	quarter)	$0.75	$1.50
¾	"	"	1.05	1.50
1	"	"	1.80	1.80
1¼	(per	month)	.85	.85
1½	"	"	1.10	1.10
2	"	"	2.25	2.25
3	"	"	5.00	5.00
4	"	"	10.00	10.00
6	"	"	20.00	20.00
8	"	"	35.00	35.00
10	"	"	50.00	50.00

Fire Protection

Outside city limits municipalities receiving fire protection from St. Paul are charged $15 per year per hydrant. In the city, the City of St. Paul pays $5 per hydrant per year maintenance charge plus the cost of the installation. For private hydrants, both in city and outside, owners pay $15 per year.

Typical Monthly Charges

Gallons	Cubic Feet	In City	Outside
3,000	400	$1.19	$1.55
5,000	667	1.82	2.45
10,000	1,333	3.08	4.25

These charges apply to a ¾-inch meter.

General Data

Population served		355,000
Miles of mains		760.96
Services		*% Metered*
Domestic		99.9
Commercial		100.0

(Continued on page 171)

When it comes to your bucket jobs come to O'Brien!

See the all-power Sewerking® BUCKET MACHINE for 1960!

READY NOW—the revolutionary Bucket Cleaner that completely removes sand, big roots and other heavy sewer obstructions as never before! Built extra heavy, strong and safe—important automatic features for easy operation—greater power, pull and capacity to clean more sewer at lower cost!

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O'Brien **MANUFACTURING CORPORATION**
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"No corrosion, negligible maintenance and continued high carrying capacity with Transite Pipe."

—F. A. Anderson and C. L. Johnson, Johnson & Anderson, Inc., Pontiac, Mich.

"First cost and economical operation make Johns-Manville's Transite Pipe a practical long-term investment," say Messrs. Johnson and Anderson, consulting engineers, pictured at right. "Despite this economy its performance is superior in many ways. There's no corrosion, negligible maintenance and continued high carrying capacity . . . helping through the years to save in the operation of the system. These many economies make it easier for communities to build and expand their water systems."

Transite's maintained carrying capacity keeps pumping costs low. Its strength, durability and corrosion-resistance cut maintenance—provide years of trouble-free service. Further savings are effected by the sure coupling method that assures a tight seal at every joint. Add to this Transite's natural interior smoothness and you see why it helps reduce community water system costs. Let us send you "Facts and Data for Engineers" book. Write Johns-Manville, Box 14 (AC-2), New York 16, N. Y.

JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS

Supply—Mississippi River and a chain of lakes
Treatment—Rapid sand filtration, chlorine and softening, fluoridation
Plant capacity (firm) ..... 100 mgd
Average demand ..... 43 mgd

Remarks

1. The Water Department provides service line to property only.
2. A frontage tax of $2.50 per front foot, payable over 10 years (without interest), is charged for new main extensions.
3. The Water Department does not operate sewer services, but it bills for them along with the water bill.
4. Burroughs Sensimatic equipment is used for automatic billing.
5. Water rates were increased by 40% in 1959. The rate adjustment did not affect water use. No further adjustment is presently needed.

CARL A. FLACK
Registrar
Water Department
St. Paul, Minnesota

SAN BERNARDINO, CAL.

Rates Per Month
Inside City

Cubic Feet	*Per 100 Cubic Feet*
First 5,000	$.15
Next 10,000	.14
" 50,000	.12
" 150,000	.10
Excess	.08

Minimum Monthly Charges
Inside City

Meter Size (in inches)	*Allowance (cubic feet)*	*Charge*
⅝	1,300	$1.95
¾	2,000	3.00
1	4,000	6.00
1½	6,000	8.90
2	8,500	12.40
3	13,000	18.70
4	18,000	25.10
6	23,000	31.10
8	30,000	39.50
12	40,000	51.50

Minimum Monthly Charges
Outside City

Meter Size (in inches)	*Allowance (cubic feet)*	*Charge*
⅝	1,300	$3.90
¾	2,000	6.00
1	4,000	12.00

All water used in excess of minimum quantities, 30 cents per 100 cubic feet.

Fire Protection

In city, 50 cents per month per inch of connection size. No service outside city.

Typical Monthly Costs

Gallons	*Cubic Feet*		*Charge*
3,000	400	(Min.)	$1.95
5,000	667	"	"
10,000	1,333		2.00

Outside city limits, costs are double for the same quantities.

General Data

Population served 92,631
Miles of mains 361
Services: Total of 28,502, 100% metered
Supply—87% wells, 13% streams
Treatment—Chlorine used in stream flow
Plant capacity ..... 49 mgd
Average demand ..... 18½ mgd

Remarks

1. Utility provides service line to property only.
2. For new main extensions, developer pays $1.50 per front foot of property on each side of the street. City pays rest.
3. The San Bernardino Municipal Water Department operates and bills for both water and sewer services.
4. Burroughs Sensimatic 100 equipment is used for automatic billing.
5. Water rates were increased by 7% in May 1958. Water use was not affected and further adjustment is not needed at present.

LESLIE A. HOSEGOOD
Superintendent and Chief Engineer
Municipal Water Department
San Bernardino, California

SANFORD, ME.

Rates Per Month

Cubic Feet	*Per 100 Cubic Feet*
First 1,000	$0.25
Next 9,000	.15
Excess	.10

These rates are in addition to the service charges below. Sanford does not serve water outside town limits.

Monthly Service Charge

Meter Size (in inches)	*Charge*
⅝	$0.58
¾	1.00
1	1.50
1½	2.50
2	3.33
2½	4.17
3	5.00
4	6.67
6	8.33

Fire Protection

Hydrants ..... $60 per annum
Sprinkler systems ..½ regular service rates
Hose outlets .....10.00 per annum

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge*
3,000	400	$1.58
5,000	667	2.08
10,000	1,333	3.53

The Sanford Water District bills for the preceding even 100 cu. ft. used.

General Data

Population served 15,000
Miles of mains 50

Services	*Number*	*% Metered*
Domestic	4,679	97
Commercial	306	100
Other	33	100

Supply—Pond and wells
Treatment—Pond: Chlorine dioxide and calgon. Wells: Sodium hypochlorite, soda ash, and calgon
Plant capacity ..... 1.823 mgd
Average demand ..... .8 mgd

Remarks

1. Utility provides service line to street edge of sidewalk.
2. Utility provides the cost of new main extensions.
3. The Sanford Water District has nothing to do with sewer services.
4. Automatic billing equipment is not used.
5. Water rates have undergone no revision since 1932.

EMERY S. LITTLEFIELD
Superintendent and Service Manager
Sanford Water District
Sanford, Maine

SIOUX CITY, IOWA

Rates Per Month

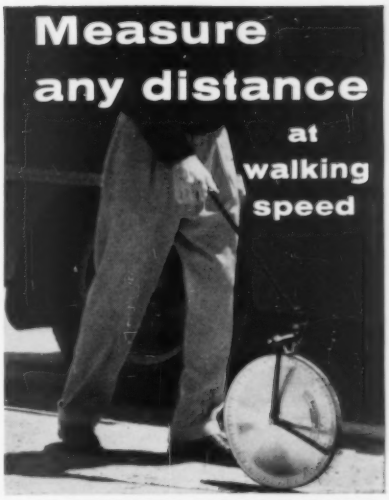
Gallons	*Per 1000 Gallons*
First 3,000 (Min.)	$2.05
Next 7,000	.30
" 10,000	.25
" 10,000	.20
" 20,000	.17
Excess	.14

Outside city limits rates are 50% additional.

Minimum Monthly Charges

Meter Size (in inches)	*Allowance (cubic feet)*	*Charge*
1 or less	3,000	$2.05
1½	13,500	5.00
2	32,000	9.00
3	107,000	20.00
4	214,000	35.00
6	535,000	80.00
8	964,000	140.00

(Continued on page 173)



records 100,000 ft.
automatically!

It's So Easy to measure with a Rolatape ...and you save time on every estimating job...no tapes to wind, no helper is required. You get precision-accurate measurements every time.

Records Feet automatically and the accumulated total is always in full view.

Shows Inches, and Fractions of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

Shows Tenths of a foot. Wheel is calibrated in tenths on reverse side for engineers.

There is a variety of Rolatape Models to suit your needs. See them at your local dealers.

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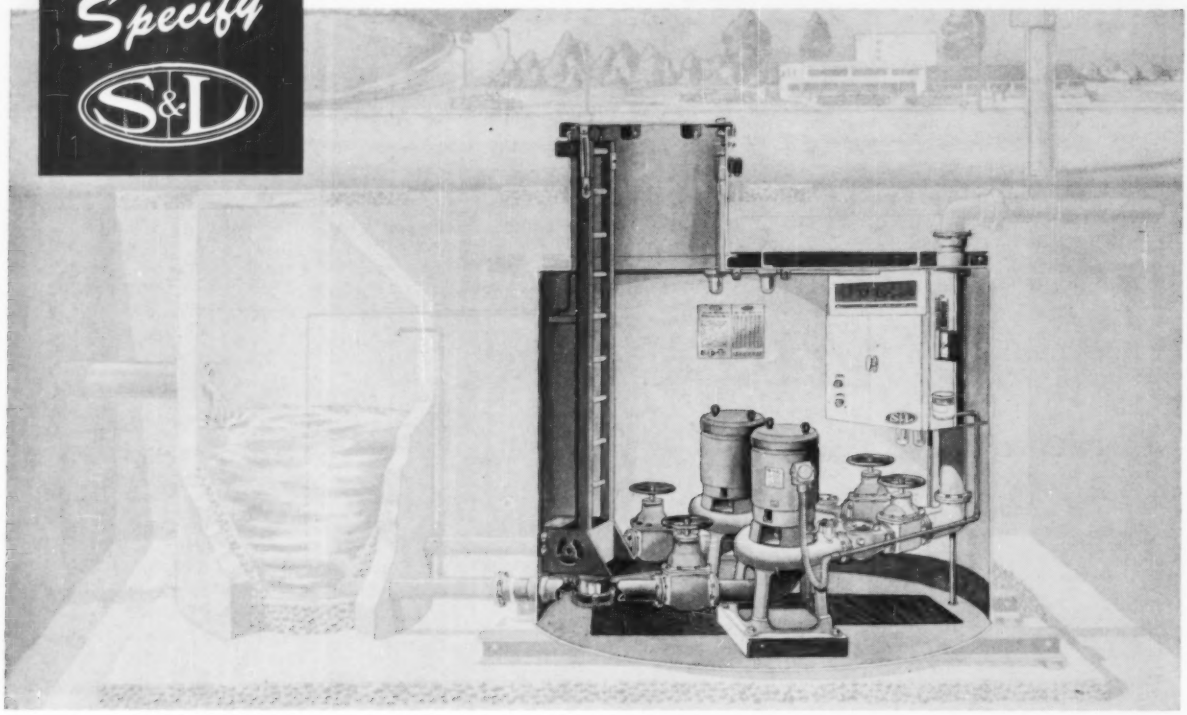
Measuring Wheels

Specify S&L

FACTORY-BUILT SEWAGE PUMP STATION

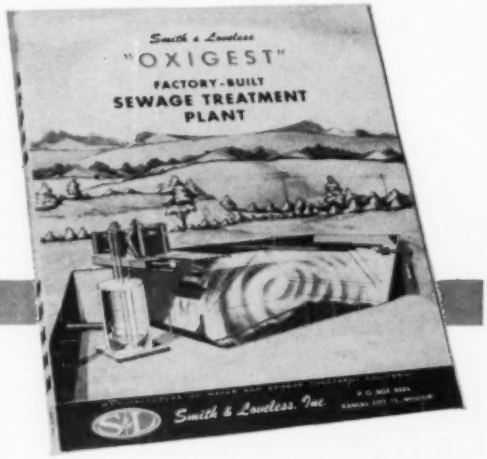


Over 1,000 installations from coast-to-coast, including Alaska and Canada, prove the merit of specifying Smith & Loveless Factory-Built sewage pump stations . . . America's finest! The compact, easy-to-maintain Smith & Loveless pump station is economical, efficient and manufactured of the finest materials. It is easily and quickly installed following delivery to the job site on special Smith & Loveless trucks.

Smith & Loveless offers a complete line of lift stations with capacities from 20 GPM to 4800 GPM.

For job recommendations, complete specifications and drawings write today for our free, 100-page data manual on pump stations and pneumatic ejector lift stations. Write Department 10A

Write Today!



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FACTORY-BUILT TREATMENT PLANT FOR SMALL SUB-DIVISIONS

The Smith & Loveless "Oxigest" is a low-cost, factory-built sewage treatment plant for small sub-divisions, schools, motels and factories. It has been carefully engineered for dependable treatment without requiring a skilled operator. Built of the finest materials, the "Oxigest" will provide a permanent plant with minimum annual maintenance.

This complete factory-built unit is available in 27 standard sizes to cover a wide range of applications. It is easily and quickly installed after delivery to the job site on special Smith & Loveless trucks.

Write today for free data manual containing design notes, selection charts, dimension drawings and specifications. Write Department 10B

S&L Smith & Loveless

DIVISION-UNION TANK CAR COMPANY
P. O. BOX 8884
KANSAS CITY, MISSOURI

Typical Monthly Costs

Gallons	*Cubic Feet*		*Charge*
3,000	400	(Min.)	$2.95
5,000	667		2.65
10,000	1,333		4.15

Outside city, 50% additional

General Data

Population served	90,000
Miles of mains	339
Services (100% *metered*):	
Domestic	24,000
Commercial	1,000
Supply—Wells	
Treatment—Chlorination	
Plant capacity	25½ mgd
Average demand	9.05 mgd

Remarks

1. Utility provides no part of the cost of service lines.
2. Utility pays none of the cost of new main extensions.
3. The Water Department does not operate sewer services, but it bills for them along with the water bill.
4. IBM billing machines are used for automatic billing.
5. Water rates were increased by 50% in 1956. Water use was not affected, and further adjustment is not needed at present.
6. No fire hydrants outside city. No charge for water used through hydrants inside city limits.

WILLIAM L. MURPHY
Director
Water Department
Sioux City, Iowa

WILMINGTON, N. C.

Rates Per Quarter

Cubic Feet			*Per 100 Cubic Feet* *In City*	*Outside*
First	1,500	(Min. of)	$4.50	$9.00
Next	28,500		.26	.52
"	30,000		.215	.43
"	90,000		.165	.33
"	300,000		.14	.28
"	1,050,000		.125	.25
"	700,000		.11	.22

Excess established by Council on request

Minimum Quarterly Rates

For all meter sizes in city	$4.50
For all meter sizes outside city	9.00

Typical Quarterly Costs

Gallons	*Cubic Feet*		*Charge* *In City*	*Outside*
9,000	1,200	(Min.)	$4.50	$9.00
15,000	2,000		5.80	11.60
30,000	4,000		11.00	22.00

General Data

Population served	55,000
Miles of mains	113.2
Services: Total of 12,586, 100% metered	
Supply—Cape Fear River	
Treatment—Rapid sand filtration	
Plant capacity	12 mgd
Average demand	6 mgd

Remarks

1. Utility provides service line to property within eight feet.
2. Utility provides the cost of new main extensions.
3. The Water & Sewer Department operates and bills for both water and sewer services.
4. Burroughs automatic equipment is used for billing.
5. Water rates were increased by 5% in 1956. Water use was not affected and further adjustment is not needed at present.
6. There is no charge for water for fire protection. Fire protection outside of city is by contract with private owners at a tax rate equal to same rate of city tax for that purpose.

COLIN F. CHURCHILL
Superintendent
Water and Sewer Department
Wilmington, North Carolina

More Federal-Aid Sewage Plants Go to Work

During July and August alone, 70 communities in 30 states completed sewage purification plants under federal-aid grants, according to the Public Health Service.

The plants represent a total construction expenditure of $17,714,471, of which federal funds totaled $4,359,270. The federal share in the cost of any individual project is 30% or $250,000, whichever is smaller.

Since the beginning of the construction-grant program under the Federal Water Pollution Control Act of 1956, 664 sewage-purification projects (with federal government participation) have been completed at an aggregate expenditure of approximately $157,000,000.

A total of 561 plants are currently under construction. When completed, they will represent an additional over-all cost of some $457,000,000 with federal funds amounting to about $100,000,000.

SWEEPER'S 3 POWERFUL BROOMS rotate in vacuum-equipped housing, sweep 7'4" path.

Now...year-around sweeping!

New Tennant *Vacuumized* Sweeper controls dust without water

Dust-free sweeping in below-freezing weather is now possible . . . with the new TENNANT Model 100 *Vacuumized* Sweeper.

Powerful broom-and-vacuum system picks up the fine dust that's usually missed . . . as well as heavy, bulky debris. A huge 540 square foot filter gives almost perfect dust control. There's no need for water spray... thus no winter freeze-up problem.

This means your town can now have ultra-clean sweeping *even on the coldest winter days!*

The new TENNANT 100 offers many other *exclusive* benefits to the progressive community which takes pride in a reputation for tidiness.

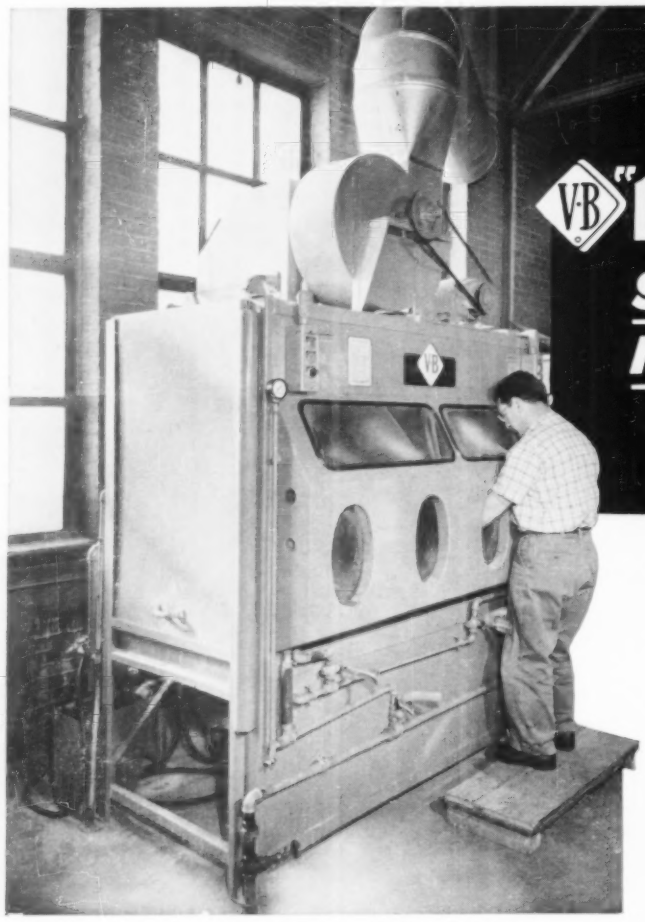
WRITE TODAY *for illustrated bulletins, photos, and performance data.* G. H. Tennant Co. 7511 N. Lilac Drive, Minneapolis 22, Minnesota.

TENNANT

VACUUMIZED SWEEPERS

VAPOR BLAST "Liquid Honing*" SPEEDS WATER METER CLEANING

without Acids, Solvents, Brushes, Scrapers . . .



Above — Vapor Blast Model 723o Liquid Honing Machine in the Milwaukee meter servicing division.

Below — Closeup of meter and parts before and after cleaning with Vapor Blast Liquid Honing. Note the like-new finish.

MUNICIPALITIES and Water Departments are now making substantial savings in money, manpower, time — and improved water meter service — with this new cleaning technique by VAPOR BLAST LIQUID HONING! In less than *five minutes* per meter, LIQUID HONING removes all dirt, discoloration, paint, scale, both inside and outside of the meter — provides a bright, lustrous, like-new finish without the need for repainting. Cleans corners, crevices, internal parts, gears, chambers and others quickly, effectively, with no possibility of scratching, scoring, or change in precision tolerances.

Cleaning your water meter by VAPOR BLAST LIQUID HONING avoids all need for strong, dangerous acids, odorous, messy solvents, scratchy wire brushing, scoring and gouging of scrapers, the excessive metal loss often experienced with sand blasting, and the inefficiency and costly labor of hand cleaning.

LIQUID HONING reduces all the time-consuming manual handling and cleaning of meter parts to a few easy minutes of precision-controlled machine operation . . . Cleaner, brighter water meters that build customer satisfaction at lower maintenance costs.

Add this really modern cleaning method to your water meter servicing — and save! Write for the complete story or send a meter for laboratory demonstration.

Some recent users of new VB Liquid Honing Meter Cleaning

- **City of Milwaukee** Milwaukee, Wisconsin
- **City of Cincinnati** Cincinnati, Ohio
- **Commonwealth Water Co.** Summit, N.J.
- **Davis Meter & Supply** Thomasville, Georgia *(Servicing Meters in Georgia and Florida)*

VAPOR V-B BLAST MILWAUKEE, WISCONSIN

*Vapor Blast and Liquid Honing are Trademarks

VAPOR BLAST MFG. CO.

3037 W. Atkinson Ave., Milwaukee 9, Wis.

Naugatuck River floods wiped out Ansonia's east bank section, menacing even the Main Street shops. This low-level area will be used only for off-street parking—a minimum-damage precaution against future floods.

Even Floods Have Hidden Benefits

Four years after Connecticut's most tragic floods, planners turn devastation into municipal, commercial and residential gains

By **N. J. PARISH, P.E.***

August 15, 1955 long will be remembered by thousands of Connecticut residents, for on that day their peaceful countryside was suddenly ravaged by the most devastating floods that have been recorded there.

Today, more than four years later, communities are still striving to heal the scars and building to prevent a recurrence. An effective tool in these efforts has been the Federal Urban Renewal Program, under which Raymond & May Associates have, during the past few months, launched four flood renewal projects. A history of these projects shows how redevelopment can be used to help flood-stricken towns.

The firm was called in by the Connecticut Development Commission on September 7, 1955, and initial planning was under way almost before clearing crews could start removing flood-strewn rubble. The cost of such planning services was paid out of a special state fund set by Governor Abraham Ribicoff, who sought to turn tragedy into community benefit through proper reconstruction.

The program started with meetings of representatives from the Connecticut Water Resources Commission, the Urban Renewal Administration (URA), U. S. Army Corps of Engineers, Public Housing Administration (PHA) and department heads of the damaged communities. The URA offered priority to projects in disaster-struck towns, but the projects had to meet Title I eligibility requirements. It was not until a year later that problems encountered in the New England flood areas forced simplification of renewal assistance in disaster areas under Section III of the Housing Act of 1956.

The commission immediately assigned Ansonia (population 19,000 in 1955) and Seymour (population 8,900) to Raymond & May Associates for renewal planning, and later, the firm was engaged as planning consultants to Norwalk (population 65,000 in 1957).

Despite urgent need for redevel-

In the foreground is Ansonia's west bank (Broad Street Renewal Project Area). There will be new buildings and new street patterns after substandard tenement buildings have been removed.

* Mr. Parish is an associate planner with Raymond & May Associates, Pleasantville, N. Y.

Greenville, Miss. Cuts Costs . . . Improves Refuse Collection with DUMPMASTER

Officials, Merchants Enthusiastic Over New Type Service

After five months of operation, Greenville, Mississippi officials, merchants and sanitation department employees believe their DEMPSTER DUMPMASTER system is the answer to low-cost, sanitary refuse collection.

This prosperous, progressive city on the banks of the Mississippi River installed one truck-mounted Dumpmaster and 39 containers in sizes ranging from three through six cubic yards in February of 1959. Five months later, City Engineer John Teunisson who, together with a far-sighted city council instituted the installation, reports that the new system has exceeded his highest expectations for economy and efficiency.

Members of the Sanitation Department who have closely supervised operation of the new equipment are particularly pleased with the Dumpmaster's ability to handle big capacity containerized refuse, as well as hand-loaded residential pickup routes. It is pointed out that this flexibility enables them to keep the equipment busy, thereby saving the taxpayers money.

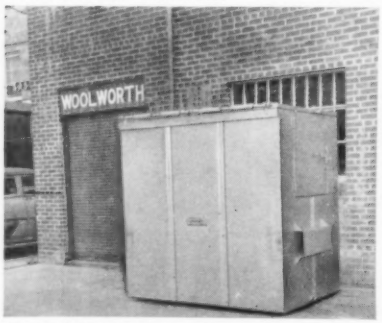
John Teunisson, veteran city official, likes Dumpmaster economy.

Dumpmaster picks up 6 cu. yd. container behind elementary school.

Schools and Downtown Areas Containerized Residential Routes Served By Dumpmaster

At present, schools and the downtown business district, where large volumes of refuse accumulate, are served by big capacity containers, with all 39 locations being given daily service. Additionally, several manual loading routes in residential areas are served by using the Dumpmaster as a conventional packer truck.

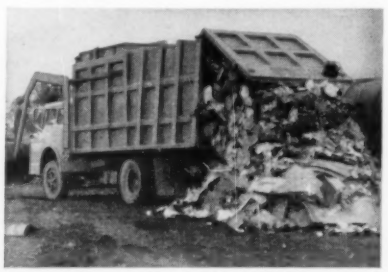
City Engineer Teunisson estimates that the school containers will pay for themselves in less than one year as a result of time savings with the new system. The Dumpmaster has made possible a $7,000 reduction in the Sanitation Department Budget. The size of these savings and opportunities for further improvement have led Greenville to set up a goal of over 100 containers as soon as expansion funds become available.



Typical installation behind a store in the downtown business district of Greenville.

Tax-Fee Plan Covers Expenses

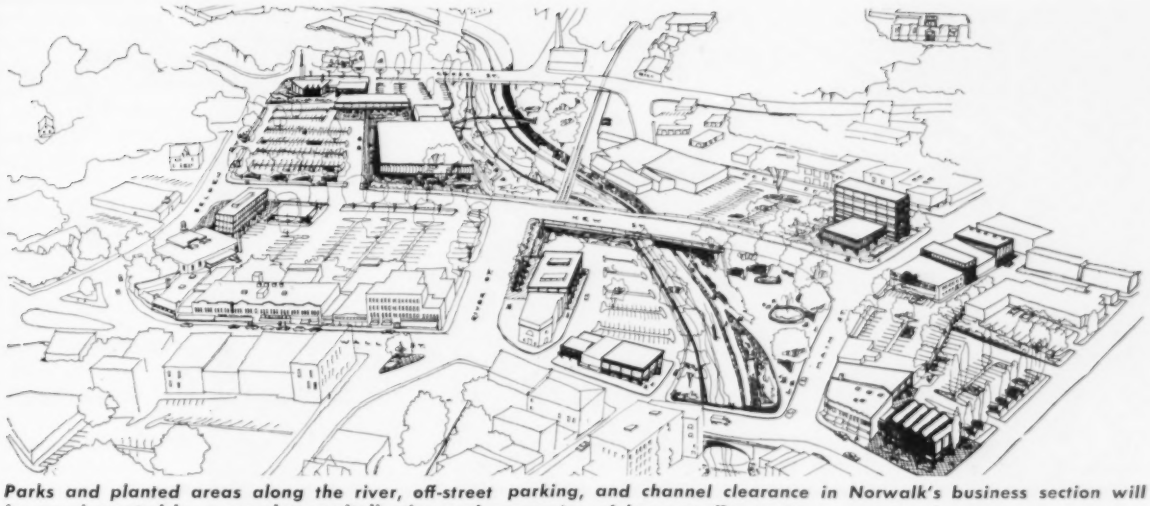
Greenville's residential and school refuse collection is tax supported, but commercial refuse carries a charge to the merchant based on the time necessary to make a pickup with a conventional packer truck and its crew. The monthly charges are based on the number of pickups, times the number of minutes required, times $2.75 per minute. These proceeds are applied to pay for the container, the Dumpmaster and the operator's salary. Because of the high speed collection, the city saves enough over manual operation to offer free service to any merchant who purchases his own container.



Dumpmaster dumps huge load at the efficiently operated landfill.

Covered by U. S. letters patent number 2,900,096

DEMPSTER BROTHERS
Inc.
Knoxville 17, Tenn., Dept. AC-2



Parks and planted areas along the river, off-street parking, and channel clearance in Norwalk's business section will be supplemented by a complete revitalization and revamping of heavy-traffic streets.

opment in Ansonia and Seymour, an expedient or patchwork renewal program would not serve the communities' best interests. Therefore, a comprehensive development plan was drawn up under a "701" urban planning assistance grant that served as a guide for redevelopment planning in these communities as well as other state and municipal projects.

Replanning of flooded areas was guided by three principles:

1. Control of sources of floods by dams, reservoirs, pressure conduits, channel widening and removal of encroachments.

2. Raising elevations of land in project areas above levels of possible future floods.

3. Making provision for land uses that would suffer minimum damage in the event of flood recurrence in those areas where it was impractical or uneconomical to apply the two principles above.

In both Ansonia and Seymour, all three principles were involved. Completion of the Army Engineers' Thomaston Dam (now under construction) will reduce the Naugatuck River flood crests (in a recurrence of the August 1955 flood) by about five feet in Seymour and by three to four feet in Ansonia. Construction by the Corps of four other proposed dams on streams tributary to the Naugatuck River will reduce flood crests by an additional three feet in both Ansonia and Seymour. One of the major planning problems was the need for reconciliation of widely divergent design criteria of Army engineers, the URA, PHA and the Connecticut Water Resources Commission.

The four flood renewal projects—one each in Ansonia and Norwalk and two in Seymour—represented individual redevelopment problems and called for individual proposals. Ansonia's Broad Street Project embraces both sides of the Naugatuck River. On one side, predominantly substandard, wooden tenements in an antiquated area will be replaced by planned residential, industrial and commercially zoned facilities in accordance with the city's comprehensive plan. The street pattern in the area also will be improved.

The project area in the other side of the river adjoins the heart of the city's central business district and will provide needed off-street parking and improved access.

The Second Street Project in Seymour is occupied by a flood-damaged and abandoned industrial plant and predominantly sub-standard residences, surrounded by standard commercial and industrial buildings. It also contains the proposed right-of-way for relocated Connecticut Route 8 Expressway. The project site also represents the only possible area for expansion of Seymour's central business district.

Under the comprehensive development plan, the commercial area will be revitalized, additional off-street parking facilities will be provided and room will be allocated for construction of modern commercial structures. Flood control measures in this area consist only of reserving floodable areas for off-street parking. Besides intangible benefits gained through removal of sub-standard property and the economic benefits to merchants by revitalization of the central business district, the program will provide a *net revenue gain to the town.* A tabulation of costs and benefits follows:

Costs:	
Total new project cost	**$378,276**
Town's share (1/6 of net project cost)	**63,046**
Added costs for items not eligible for inclusion in project costs	**65,401**
Total costs to town	**128,447**
Approximate annual costs to town for a ten-year period (including interest)	**15,000**
Benefits:	
Annual estimated tax revenues from redeveloped properties	**11,284**
Annual estimated revenues from parking meters	**12,930**
Annual estimated revenues from parking space rental	**4,200**
Total annual revenues to town from redevelopment project	**28,414**
Total tax revenue now received by town from project area	**4,375**
Extra annual revenue to town after redevelopment	**24,039**
Surplus annual income to town during first ten years	**9,000**
Surplus annual income to town after first ten years	**24,000**

Seymour's second renewal proj-

THE SWING'S THE THING!

180° SPEED SWING

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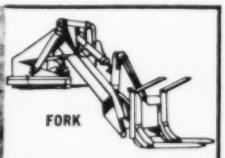
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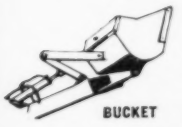
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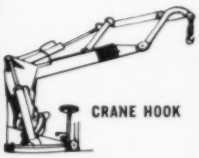
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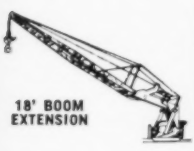
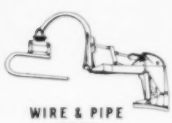
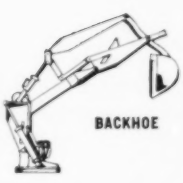
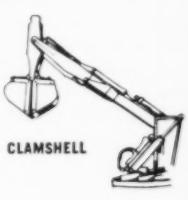

18' BOOM EXTENSION


WIRE & PIPE HOOK


BACKHOE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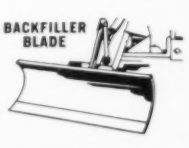
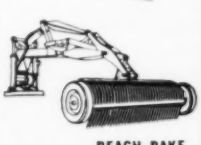
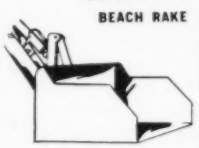

BACKFILLER BLADE


BEACH RAKE


4 CU. YD. SNOW BUCKET

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ect (the Derby Avenue Project) demonstrates how a small renewal project can solve a flood problem—and meet a great neighborhood need.

This project site is occupied by residential structures, several damaged beyond repair by the 1955 flood. These sites and adjacent vacant land, because of their vulnerability to flooding, could be used only for open land. By adding the project area to that of an adjacent high school on an inadequate 1.3-acre plot, the school will gain valuable playground and open space and the town will have a 6.1-acre area that will suffer only minimal damage in the event of another flood. The total cost to the town will be $45,265. If the town had undertaken this project without aid of state and federal funds, the cost would have been about $159,000.

Norwalk is a rapidly growing city in the outer ring of New York's metropolitan region. Its population has expanded from 49,507 in 1950 to an estimated 65,000 in 1957. The 1955 flood destroyed structures in the central business district that contained 100,000 square feet of gross commercial ground floor area.

In the past, Norwalk's central business district has suffered from inadequate off-street parking and a street pattern bringing heavy traffic into its most congested areas.

The renewal program will:

1. Eliminate second and third-story residential uses

2. Provide additional off-street parking facilities

3. Provide new commercial areas

4. Reduce traffic congestion by street pattern realignment

5. Prevent recurrence of a major cause of the high-water level of the 1955 floods by prohibiting building of structures over the Norwalk River. Collapse of such buildings caused serious channel blockage.

Land affected by the floods either will be filled to elevations above the 1955 flood level or will be left as open spaces, subject to minimum flood damage. These, developed into park strips and promenades, will enhance property values and increase retail trade.

Progress in the flood renewal program has not been as rapid as many had hoped. Planning for most of the projects was not completed until 1958, prolonged by the time-consuming coordination of flood-report requirements of numerous agencies. Superseding flood-control reports have often forced changes in plans.

Steps that would speed up the renewal program in case of future disasters are:

1. Permitting acquisition of land and property by the municipality in an area designated for redevelopment. These expenditures would be carried as non-cash local grants-in-aid until subsequent municipal and HHFA approval of plans for re-use and redevelopment of the properties.

2. Granting approval of rough project cost estimates for budgetary purposes during the planning period, with approval of actual costs withheld until final designs are prepared in the execution stage.

3. Granting approval of property acquisition in portions of the redevelopment tract not to be affected by the results of the engineering study because preliminary renewal plans often can be prepared before final engineering studies are completed.

Despite all problems and delays, the flood renewal projects are about to start paying dividends, and lessons learned will pay dividends in future renewal programs.

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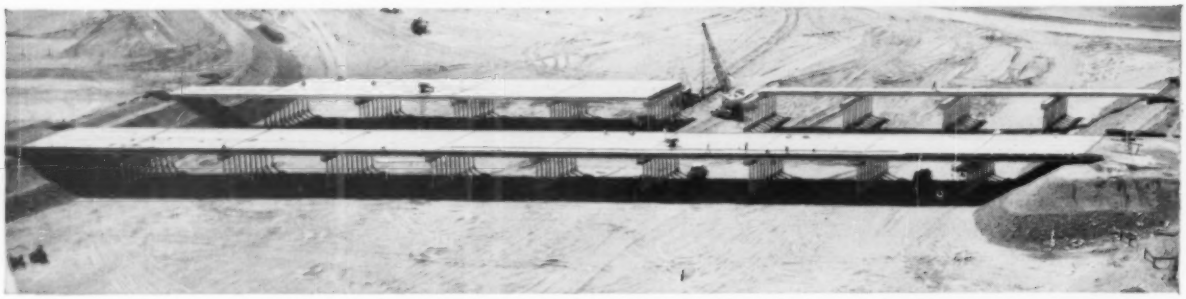
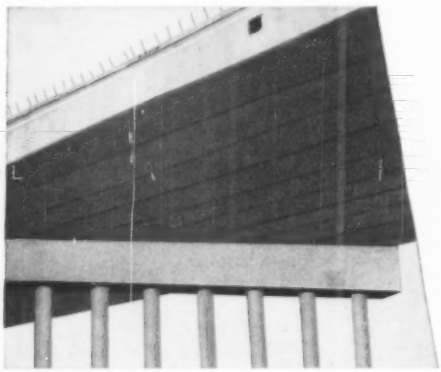
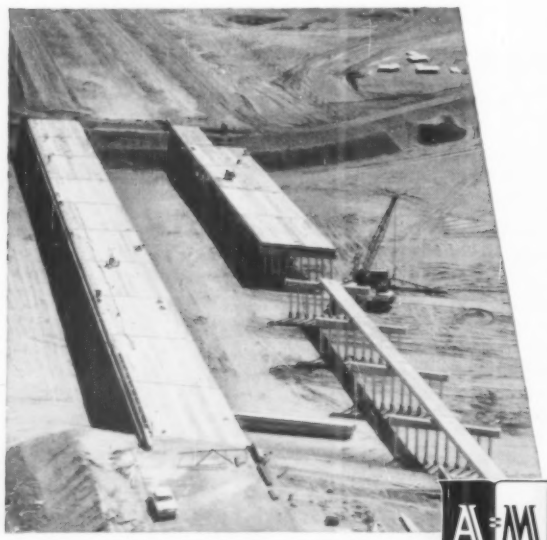


Dual lane highway bridges, constructed with prestressed pretensioned Amdek Beams, near completion in Socorro County, New Mexico. Erected for the New Mexico State Highway Department as part of the Federal Interstate Program.



Low depth-to-span ratio means less weight, greater clearance and reduced fill. Smooth underdeck offers minimum resistance to flood debris.



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Crimes of 1958

Highest conviction rate for drunken driving

The first of the uniform Crime Reports prepared according to the revisions suggested by a special consultant committee of experts appointed by the FBI appears in *Uniform Crime Reports*—1958, published by the Federal Bureau of Investigation, U. S. Department of Justice, Washington 25, D. C. The committee's recommendations, endorsed by the Committee on Uniform Crime Records of the International Association of Chiefs of Police, are reflected in changes in form and content of this report.

The volume of crime in the United States has been measured for the first time by the new Crime Index, seven separate crime categories which are shown in the table below.

The categories of negligent manslaughter and larceny under $50, previously listed in *Uniform Crime Reports* with these seven classes, have not been included in the Crime Index. Statutory rape (no force used—victim under legal age of consent) has also been omitted, and rape figures have been limited to offenses involving force.

In addition to these changes, the estimating procedures used in arriving at the above totals for the United States are entirely new and are based on the recommendations of the Consultant Committee on Uniform Crime Reporting. In view of these changes and inasmuch as the Crime Index was not used in previous years, the crime figures shown for 1957 will differ from similar estimates in the 1957 annual issue of the *Uniform Crime Reports*. Accordingly, no valid comparison can be drawn between the estimated U. S. crime totals shown here and the totals appearing in previous issues of *Uniform Crime Reports*.

Over one-half of the dollar value of property stolen in 1958 was accounted for by auto thefts. In this category, the average value per theft was $835. Other property stolen by robbers, burglars, and thieves averaged $111 per offense.

While police recovered 92 cents for each $1 stolen in the auto theft category, recovery of other types of property was 14 cents for each $1.

Police continued the relatively high clearances of crimes against the person. They cleared 79 of each 100 of these by arrest, and charged (held for prosecution) 69 persons. Criminal homicides, forcible rapes, and aggravated assaults generally receive more intensive investigative attention than the more numerous and, to some extent, less important crimes which have property as their object. Robbery, the most vicious of the property crimes, is unique in that group in that the victim is confronted by the criminal. Police cleared by arrest 43 of each 100 robberies and charged 42 persons. With robbery and other property crimes of burglary, larceny and auto theft grouped together, the clearance rate was 24 for each 100 offenses. The overall rate for crimes against persons and against property was 26 offenses cleared by arrest and 21 persons charged for each 100 offenses.

For all crime categories, as a single group, police reported that of each 100 persons charged, 67 persons were found guilty. The highest conviction rate was for driving while intoxicated, with 81 persons found guilty for each 100 charged.

Crime Index Classification	Estimated No. of Offenses 1957	1958	Increase No.	%
Murder	8,027	8,182	155	1.9
Forcible rape	12,886	14,561	1,675	13.0
Robbery	66,843	75,347	8,504	12.7
Aggravated assault	110,672	113,530	2,858	2.6
Burglary	603,707	679,787	76,080	12.6
Larceny over $50	354,972	391,550	36,578	10.3
Auto theft	265,178	270,965	5,787	2.2
Total	1,422,285	1,553,922	131,637	9.3

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ZONING AND PLANNING NOTES

Edited by NORMAN WILLIAMS, Jr.

Retroactive Sign Regulations—Marquees

MICHIGAN. *Ver Hoven Woodward Chevrolet* v. *Dunkirk*, 88 North Western (2d) 498 (Supreme (highest) Court, March 4, 1958).

MARYLAND. *Grebow* v. *City of Baltimore* 142 Atlantic (2d) 554 (Court of Appeals (highest court), June 17, 1958).

In the *Dunkirk* case, the Highland Park ordinance forbade projecting signboards or other signs, after the expiration of a five-year period, but exempted "marquees or fixed awnings" from this restriction. The requirement for termination of projecting signs was held to be reasonable, in accordance with many previous decisions; and the exemption of a marquee was also upheld, on the ground that "there are clear and obvious distinctions between a projecting sign . . . and a marquee."

In the *Baltimore* case, the Baltimore zoning regulations requiring discontinuance of non-conforming signs in residence districts had recently been upheld*, and the question arose whether these restrictions applied to non-illuminated advertising signs painted on the brick sidewall of a building. Since the restriction was phrased as applying to "billboards and poster boards," the Court held that it did not apply in such a situation.

* *Grant* v. *Baltimore*, 212 Maryland 301, 129 Atlantic (2d) 363.

Water Pollution—Classification of Rivers

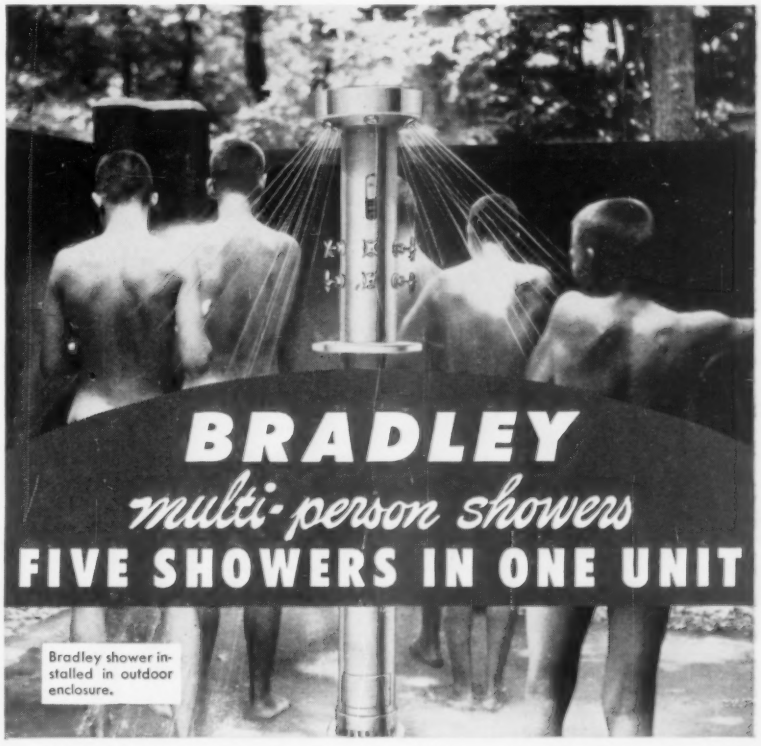
NEW YORK. *City of Utica* v. *Water Pollution Control Board*, 156 North Eastern (2nd) 301 (Court of Appeals (highest court), January 22, 1959).

NEW YORK. *Town of Waterford* v. *Water Pollution Control Board*, 156 North Eastern (2nd) 427 (Court of Appeals (highest court), January 22, 1959).

Like many other states, in 1949 New York State, enacted a law authorizing an administrative agency (the State Water Pollution Control Board) to classify all waters within the state, and to prescribe standards of purity and appropriate measures for treatment of pollution for the various categories in such classifications. Under this statute, the Board proceeded to develop a comprehensive program for abatement of water pollution; and, after extensive studies and public hearings, classifications (together with the accompanying standards of purity) were issued in 1954 for the waters near Utica. Under the proposed plan, the city of Utica would have to build a sewage treatment plant in order to stop the discharge of untreated sewage into the Mohawk River and the Erie Canal. When nothing was done for the next two years, the Board started proceedings against Utica; and Utica instituted this suit to restrain the Board from proceeding, on the ground that the water pollution control law was unconstitutional, because it involved an invalid delegation of power to the Board.

In this opinion, the Court first held that water pollution was a natural matter of state concern. Moreover, since needs and conditions varied considerably throughout the state, the Court upheld the delegation of power to the Board, under broad standards, to prescribe different regulations in different situations. It was noted that, under the statute, classification depends upon consideration of a number of factors, including the physical nature of the stream, the character of land use bordering the stream, the present and future use of waters of the stream, and the extent of present pollution. In view of the complex problems to be solved, the law was held valid.

In the *Waterford* case, the section of the Mohawk River near the town of Waterford was classified as Class C waters



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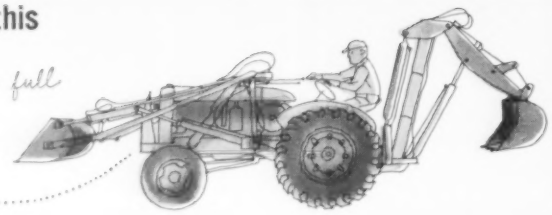

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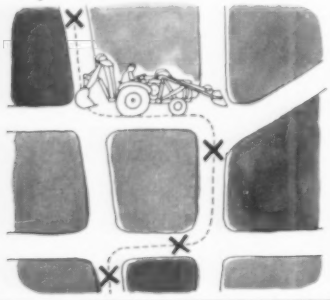
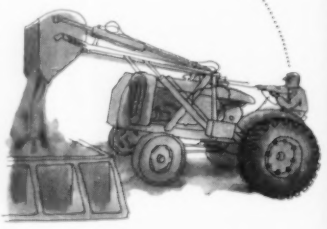


same man can dig, scrape, haul, grade, fill ... etc ... etc.



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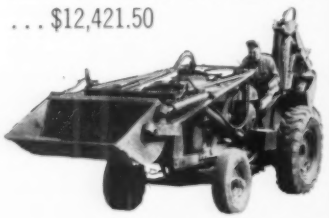

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(suitable for fishing, but not for bathing or drinking). Waterford had been discharging untreated sewage into the Mohawk for a long time, and brought this suit to invalidate the classification under Category C. Cohoes and Troy joined as *amici curiae*.

In this opinion, the Court first held that under the statute the Board did not need to take into account the economic and fiscal impact of the classification upon the affected municipalities at the time of establishing the proper classification of waters—although it was indicated that such considerations would be relevant in relation to the requirements for remedying the pollution, and particularly to the timing thereof.

> "In other words, they maintain, as does Judge Van Voorhis, that in classifying the waters of this State 'to prevent and control the pollution' thereof (Public Health Law, §1200) the Board's determination as to 'reasonable standards of purity' or impurity should depend not on the actual facts, but rather in some measure on how much it will cost to abate or prevent pollution. It is another way of saying that a physician may not diagnose a serious disease as such if the patient cannot afford the cost of cure.
> "It is quite apparent that appellant is premature in seeking to raise fiscal considerations at the time of classification. At this stage the Board is merely applying its overall system of water classifications and quality standards to a particular body of water, in accordance with the 'best usage' of that water and in the light of hydrologic factors, the character of the surrounding district, the past, present and foreseeable uses of such waters and the extent of present pollution. The proper time to consider the financial ability of affected municipalities to comply with established standards is when the Board, in accordance with its previously assigned classifications, evolves a comprehensive program to abate pollution in the classified waters. If at that time a municipality demonstrates that it is financially unable to provide the treatment works necessary to cure existing pollution, the Board is empowered to grant extensions of time."

The Court also noted that Class C was the lowest classification of any part of the Mohawk River, and added:

> "The appellants seem to ignore completely the severe menace to public health posed by polluted waters, as well as the deleterious effects of pollution on neighboring waters and on the natural resources of the State, which were among the prime considerations that motivated the enactment of the Act. Furthermore, no section of the Mohawk River proper has been classified lower than C and, in fact, much of it has been classified as A and B. Of a total of 618 classifications of the waters of the Mohawk Drainage Basin, only three *creeks* were classified lower than D."

Judge Van Voorhis dissented alone from both opinions in a long opinion, similar in tone to others of his recent dissents. The Judge was considerably troubled by whether the pollution complained of constituted a nuisance at common law, and also about the effect of the proceedings upon riparian rights.

LEGAL NOTES AND DECISIONS

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Assessments for Playground Approved

In proceeding to acquire land for playground where neighboring landowners attacked amount of assessment, held since owners failed to offer evidence that land was not so benefited by assessment approved. *Petition of City of Seattle to Acquire Land, etc.*, 336 P.2d 863 (Wash., March 12, 1959)

Building Permit For Filling Station Denied

In action concerning zoning ordinance which would prohibit plaintiffs from building filling station, held trial court's order rezoned property and was improper usurpation of power of zoning board. *City of Punta Gorda* v. *Morningstar*, 110 So.2d 449 (Fla. App., April 3, 1959)

Condemnation—Valuation Inadequate

In proceeding by city to acquire land for expansion of city's water treatment plant, held evaluating property as raw acreage suitable for subdivision was insufficient. *City of Shreveport* v. *Jones*, 109 So.2d 102 (La., Feb. 16, 1959)

Industrial Development— Contract For Plant Construction Invalid

Where contract between corporation and park commission called for corporation to contribute majority of land to be developed at industrial site and corporation was given right to approve overall plan of development, and commission was required to raise funds to be used in development, held contract void as being loan of commercial credit to private corporation. *Giles* v. *City of Biloxi*, 112 So.2d 815 (Miss., June 8, 1959)

Police—Dismissal Upheld

In action concerning dismissal of patrolman in Transit Police Department, held evidence was sufficient to sustain determination of misconduct and dismissal was not disproportionate to offense. *Payton* v. *New York City Transit Authority*, 184 N.Y.S.2d 820 (N.Y. Sup. Ct., App. Div., April 21, 1959)

Sewer Tax Valid

In action by taxpayers against sewer district to enjoin levying proposed tax, held individual township taxpayers were without legal capacity to attack organization of sewer districts. *Bishop* v. *Shawnee & Mission Twps. Turkey Cr. M. S. D.*, 336 P.2d 815 (Kan., March 18, 1959)

Sewers—Landowner Has Vested Right

Where special assessment ordinance created vested right in property to use improvement equally with all other property in district so assessed, held landowners could not be denied at least equal use of sewer system even though system was presently overloaded. *LaSalle Natl. Bk.* v. *Village of Riverdale*, 157 N.E.2d 7 (Ill., March 20, 1959)

Streets—Abutter Cannot Compel Removal of Barrier

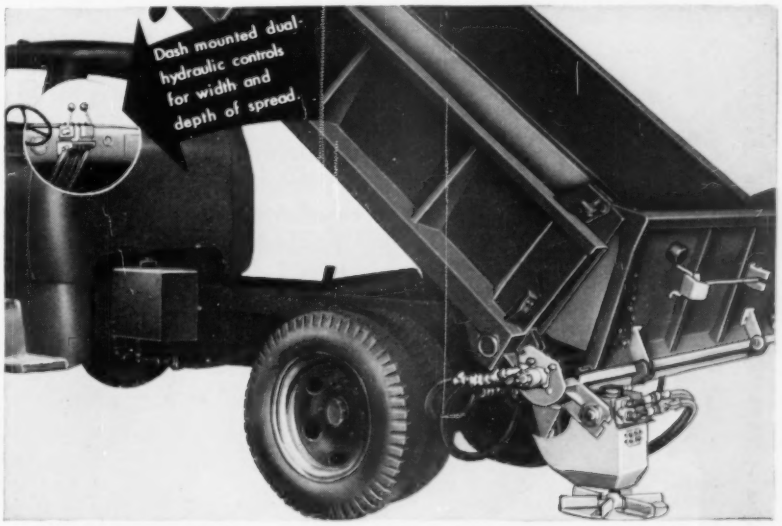
Where barrier was erected across one-half of lot used as private street, held since investigation showed traffic hazard where lot joined highway maintenance of barrier reasonable and removal will not be ordered. *Segal* v. *Village of Scarsdale*, 184 N.Y.S.2d 547 (N.Y. Sup. Ct., Westchester Cty., Dec. 18, 1959)

Taxation— Distribution Must Be Based on Census Common to All

Where statute provided that gasoline revenues be apportioned according to last available federal census, held same census shall apply to all cities and special census affecting one city could not affect this type of distribution. *State* v *Morgan*, 336 P.2d 791 (Wyo., March 24, 1959)

Taxation— Gain from Sale of Partnership Not Taxable

In proceeding concerning net profit tax assessment under income tax ordinance, held gain from sale of partnership interest did not constitute gain earned from operation of business or "net profit" and was not taxable. *Quaid* v. *Tax Review Board of City of Philadelphia*, 149 A.2d 557 (Pa. Super. Ct., March 18, 1959)



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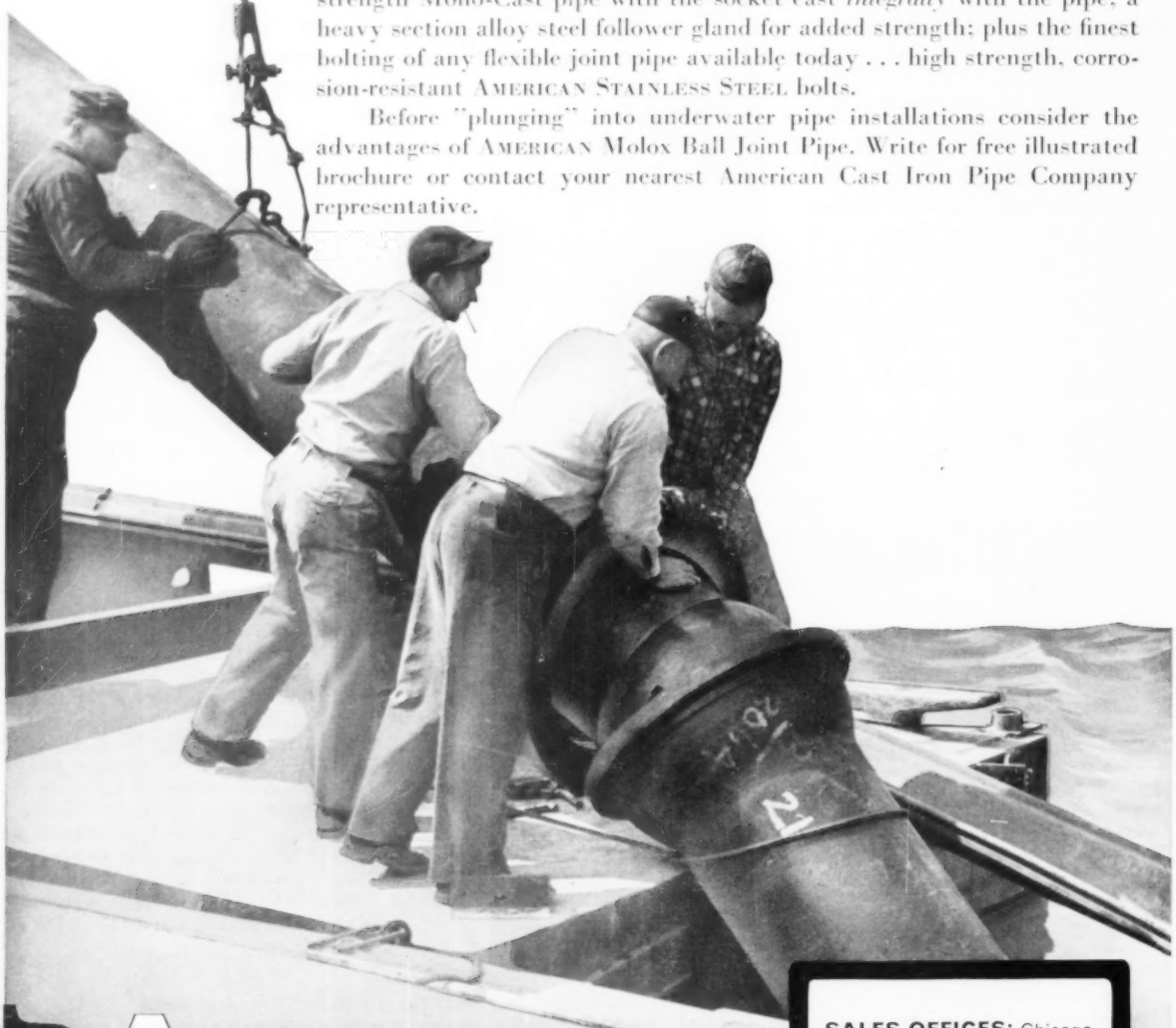

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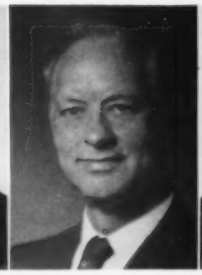
RECENT CITY MANAGER APPOINTMENTS

Donald P. Wolfer
Ft. Lauderdale, Fla.

Clifton Lee
Cushing, Okla.

Wayne Moore, Jr.
College Park, Ga.

Harold K. Schone
Arcadia, Calif.



Paul A. Rowley
Gardena, Calif.

Ted Tedesco
Elm Grove, Wis.

THOMAS A. BANFIELD, a businessman in Elmira, N. Y., has been appointed the first village manager of Horseheads, N. Y. Mr. Banfield formerly was manager of Elmira.

CURTIS H. BLYTH, manager at Bayside, Wis., for the past three years, has been appointed the first manager of Boulder City, Nev. Mr. Blyth has also served as manager at Florence, Colo., and assistant manager of Mound, Minn.

OSCAR E. CUTTING, for the past 4½ years assistant manager and director of public works, for the city of Bozeman, Mont., has been appointed manager of that city to succeed M. E. Henderson, who will retire December 31.

FRED DAVIS, director of public works, Chico, Calif., for the past six years, was recently appointed manager of that city, succeeding Robert O. Bailey. Mr. Davis was previously assistant city engineer at Napa, Calif.

PAUL J. FLYNN, manager at Berwick, Me., for the past two years, has been recently appointed the new manager of Mansfield, Mass., succeeding Cecil O. Lancaster, now manager at Wilmington, Mass.

WILLIAM J. GARRETT, administrative assistant at Elgin, Ill., is the new manager of Athens, Tenn., succeeding S. B. Boyer.

JOHN H. KENNAUGH, manager at Buchanan, Mich., for the past three years, was recently appointed manager of Wyoming, Mich., succeeding William Doorn. Mr. Kennaugh was previously assistant manager at Western Springs, Ill.

CLIFTON LEE, for the past three years city clerk of Cushing, Okla., was recently appointed manager of that city, succeeding L. L. Houston, who resigned.

B. COWLES MALLORY, assistant sanitary engineer for the U. S. Public Health Service, Washington, D. C., has been appointed manager of Pearisburg, Va., succeeding A. Kyle Roop, Jr., now manager at Clifton Forge, Va.

ROBERT H. MCGREGOR, manager at Hanover, Pa., for the past two years, was recently appointed manager of Painesville, Ohio, succeeding Fred E. Weisbrod, now manager at Oak Ridge, Tenn. Mr. McGregor has also served as manager at Dormont and Whitehall, Pa.

WAYNE MOORE, JR., has been appointed manager of College Park, Ga., succeeding Ridley T. Nichol, who resigned to enter private business.

J. DONALD REIMENSCHNEIDER, formerly assistant manager of Pottsville, Pa., has been appointed manager of Northumberland, N. H., succeeding K. D. Boehner, now manager at Hampton, N. H.

B. MAX PAULLING, has been recently appointed as the new manager of Camden, S. C., succeeding Max Holland, now manager at Kinston, N. C.

PAUL A. ROWLEY, administrative coordinator and purchasing officer of Gardena, Calif., has recently been appointed as the first administrative officer of that city. Mr. Rowley has previously served as superintendent of the municipal bus lines, and chief of the license and tax departments in Gardena.

HAROLD K. SCHONE, director of the public works department, Oakland Co., Mich., was recently appointed manager of Arcadia, Calif., succeeding Neil F. Anderson. Mr. Schone has also served as manager of Harbor Springs, Oak Park, and Birmingham, Mich.

DAVID C. SLAGHT, city engineer of La Grande, Ore., has been appointed manager of that city, succeeding Fred J. Young.

PAUL F. SMITH, administrative assistant of Windsor, Conn., was recently named the first manager of Plainville, Conn.

TED TEDESCO, administrative assistant of Park Forest, Ill., has been appointed the new manager of Elm Grove, Wis., succeeding Leonard L. Bishop, now manager at Hazel Park, Mich. He has been assistant planning director in Ann Arbor, Mich.

STACY THOMAS, is the new manager of Carolina Beach, N. C., succeeding William G. Head, now manager at Canton, N. C.

DONALD P. WOLFER, public administration advisor to the government of Chile for the ICA, is the new manager of Fort Lauderdale, Fla., succeeding William J. Veeder, now manager at Charlotte, N. C. Mr. Wolfer, who was manager of Fort Lauderdale in 1954 and 1955, has also served as manager of Tucson, Ariz., and Albany and Cairo, Ga.

ROBERT V. YOUKEY, manager at North Miami, Fla., for the past seven years, was recently appointed manager of Lakeland, Fla., succeeding David O. Payne. Mr. Youkey has also served as engineering administrator for the City of North Miami.

JACK YOUNG, manager at Fort Meade, Fla., is the new manager of Riviera Beach, Fla. He formerly served as assistant manager and clerk at Bartow, Fla.

ORIN F. NOLTING
Executive Director
International City Managers' Association

Southern New England Starts Planning Study

City and regional planning experts of Yale and Harvard Universities are collaborating on a new three-month project to make a depth study of Southern New England.

Christopher Tunnard, Director of Yale's Graduate Program in City Planning, and Reginald Isaacs, Chairman of Harvard's Department of City and Regional Planning, have organized a group of between 20 and 30 advanced planning students of the two universities to explore the regional planning needs of the area.

The Harvard group will begin by exploring problems from the Merrimac River through to Connecticut's Fairfield County, and will concentrate on the Boston metropolitan area.

The Yale graduate planners will examine the influences of the New York-New Jersey region on Southern New England and later will present ideas for developing the human and economic potential of Connecticut. Emphasis will be on a physical plan for homes, industries, agriculture and tourism.

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CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

Feb. 8-10—New York, N. Y.
ASSOCIATION OF TOWNS OF THE STATE OF N. Y. Annual Meeting (Commodore Hotel). Exec. Sec., William K. Sanford, 91 State Street, Albany, N. Y.

Feb. 22-25—Denver, Colo.
WEED SOCIETY OF AMERICA. Biennial Meeting (Cosmopolitan Hotel). Sec., Alfred H. Fletcher, Div. of Environmental Health, Dept. of Health, Trenton 25, N. J.

Feb. 23-26—Santa Monica, Calif.
CALIFORNIA MUNICIPAL UTILITIES ASSOC. Annual Meeting (Miramar Hotel). Sec., F. V. Frey, 100 N. Garfield Ave., Room 108, Pasadena, Calif.

Feb. 28-March 4—College Station, Tex.
TEXAS WATER & SEWAGE WORKS ASSOC. Annual Short School (Memorial Student Center, Texas A & M College). Sec., G. R. Herzik, Jr., 2202 Indian Trail, Austin, Tex.

March 6-12—San Francisco, Calif.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (The Fairmont Hotel). Managing Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

March 16-18—Chicago, Ill.
AMERICAN WATER WORKS ASSOC.—Illinois Section. Annual Meeting (Pick-Congress Hotel). Sec., Dewey W. Johnson, Cast Iron Pipe Research Assoc., 3440 Prudential Plaza, Chicago 1, Ill.

March 16-18—Little Rock, Ark.
ARKANSAS WATER & SEWAGE CONFERENCE. Annual Meeting (Marion Hotel). Sec., C. W. Oxford, College of Engineering, Univ. of Ark., Fayetteville, Ark.

March 20-23—Savannah, Ga.
AMERICAN WATER WORKS ASSOC.—Southeastern Section. Annual Meeting (De Soto Hotel). Sec.-Treas., N. M. de Jarnette, 309 State Office Bldg., Atlanta 3, Ga.

March 21-24—San Francisco, Calif.
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA. Annual Convention (Masonic Temple). Exec. Dir., James D. Marshall, 20th & E Sts., N.W., Wash 6, D. C.

March 23-25—Corvallis, Ore.
NORTHWEST HIGHWAY ENGINEERING CONFERENCE. First meeting of the combined Conference on Road Building and Northwest Traffic Engineering Conference. (Oregon State College). Sec., Martin P. Coopey, Apperson Hall, Oregon State College, Corvallis, Ore.

March 29-April 1—Philadelphia, Pa.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Meeting (Bellevue-Stratford Hotel). Exec. Sec., Kenneth D. Rice, 1035 Parkway Ave., Trenton, N. J.

March 30-April 1—Atlantic City, N. J.
NEW JERSEY SEWAGE & INDUSTRIAL WASTES ASSOC. Annual Meeting (The Traymore Hotel). Sec.-Treas., Michael S. Kachorsky, P. O. Box 68, Manville, N. J.

April 5-7—Binghamton, N. Y.
AMERICAN WATER WORKS ASSOC.—New York Section. Spring Meeting (Sheraton Inn). Sec., Kimball Blanchard, Neptune Meter Co., 22-22 Jackson Ave., Long Island City, N. Y.

April 12-15—Los Angeles, Calif.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Meeting (University of Southern California). Exec. Dir., Robert J. M. Matteson, 6042 Kimbark Ave., Chicago 37, Ill.

April 18-21—Lafayette, Ind.
PURDUE ROAD SCHOOL. Annual Session (Memorial Center, Purdue Univ.). Sec., J. F. McLaughlin, School of Civil Engineering, Purdue Univ., Lafayette, Ind.

***April 20-22—Lincoln, Neb.**
AMERICAN WATER WORKS ASSOC.—Nebraska Section. Annual Meeting (Cornhusker Hotel). Sec., J. J. Rossbach, Jr., Metropolitan Utilities District, 3906 N. 48tn St., Omaha, Neb.

***April 20-22—Emporia, Kans.**
AMERICAN WATER WORKS ASSOC.—Kansas Section. Annual Meeting (Broadview Hotel). Sec., H. W. Badley, Neptune Meter Co., 119 W. Cloud, Salina, Kans.

***April 22-24—Emporia, Kans.**
KANSAS SEWAGE & INDUSTRIAL WASTES ASSOC. Annual Meeting (Broadview Hotel). Sec., H. W. Badley, Neptune Meter Co., 119 W. Cloud, Salina, Kans.

April 24-27—Buffalo, N. Y.
AMERICAN WATER WORKS ASSOC.—Canadian Section. Annual Meeting (Statler Hotel). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Canada.

April 24-27—Charleston, S. C.
NATIONAL ASSOC. OF HOUSING & REDEVELOPMENT OFFICIALS—Southeastern Regional Council. Annual Meeting (Francis Marion Hotel). For information: National Assoc. of Housing & Redevelopment Officials, 1313 E. 60th St., Chicago 37, Ill.

April 27-30—Berkeley, Calif.
CALIFORNIA SEWAGE & INDUSTRIAL WASTES ASSOC. Annual Meeting (Claremont Hotel). Sec.-Treas., Alfred D. Leipzig, c/o Hyperion Treatment Plant, 12000 Vista del Mar, Venice, Calif.

April 28-30—Billings, Mont.
AMERICAN WATER WORKS ASSOC.—Montana Section and MONTANA SEWAGE & INDUSTRIAL WASTES ASSOC. Joint Meeting (Northern Hotel). Sec.-Treas., A. W. Clarkson, c/o State Board of Health, Helena, Mont.

April 28-30—Tucson, Ariz.
ARIZONA SEWAGE AND WATER WORKS ASSOC. and AMERICAN WATER WORKS ASSOC.—Arizona Section. Joint Meeting (Pioneer Hotel). Sec., A. D. Cox, 2612 N. 16th St., Phoenix, Ariz.

May 3-5—Washington, D. C.
AMERICAN PUBLIC POWER ASSOC. Annual Meeting (Hotel Shoreham). Gen. Mgr., Alex Radin, American Public Power Assoc., Suite 830, 919 18th St. N.W., Wash. 6, D. C.

***May 3-5—Lafayette, Ind.**
PURDUE INDUSTRIAL WASTE CONFERENCE. Annual Meeting (Purdue University). Sec., Don E. Bloodgood, Civil Engineering Bldg., Purdue Univ., Lafayette, Ind.

May 10-12—Washington, D. C.
NATIONAL HIGHWAY USERS' CONFERENCE. Biennial Convention (Mayflower Hotel). Dir., Arthur C. Butler, 966 National Press Bldg., Wash., D. C.

***May 10-14—Chicago, Ill.**
INTERNATIONAL MUNICIPAL CONFERENCE. Joint Meeting of the United States Conference of Mayors and the Canadian Federation of Mayors & Municipalities (Conrad Hilton). Exec. Dir., Harry R. Betters, 1707 H Street N.W., Washington 6, D. C.

May 15-20—Bal Harbour, Fla.
AMERICAN WATER WORKS ASSOCIATION. Annual Convention (Americana Hotel). Exec. Sec., Raymond J. Faust, 2 Park Ave., New York, N. Y.

May 16-19—St. Paul, Minn.
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Meeting (Lowry Hotel). Sec., Arthur J. Shinners, Town Hall, Brookline, Mass.

May 16-20—Montreal, Canada
NATIONAL FIRE PROTECTION ASSOC. Annual Meeting (Queen Elizabeth Hotel). Gen. Mgr., Percy Bugbee, 60 Batterymarch St, Boston, Mass.

May 22-26—Cincinnati, Ohio
AIR POLLUTION CONTROL ASSOCIATION. Annual Meeting (Netherland-Hilton). Exec Sec., Arnold Arch, 4400 Fifth Ave., Pittsburgh 13, Pa.

May 22-26—Bal Harbour, Fla.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Conference (Americana Hotel) Exec. Sec., Arnold Arch, 4400 Fifth Ave., St., Chicago 37, Ill.

May 24-27—Washington, D. C.
NATIONAL RIVERS & HARBORS CONGRESS. 47th National Convention (Mayflower Hotel). Exec. Vice-Pres., William H. Webb, Suite 523-A, La Salle Bldg., 1028 Connecticut Ave. N.W., Washington 6, D. C.

May 28-June 3—San Juan, Puerto Rico
INTERNATIONAL FEDERATION FOR HOUSING & PLANNING and INTER-AMERICAN PLANNING SOCIETY. Joint World Congress (University of Puerto Rico). Sec.-Gen., Humberto Espinosa, P. O. Box 1729, San Juan, Puerto Rico.

June 5-9—New York, N. Y.
MUNICIPAL FINANCE OFFICERS ASSOC. OF THE U. S. AND CANADA. Annual Meeting (Statler Hilton Hotel). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill

***June 5-10—Atlantic City, N. J.**
NATIONAL CONFERENCE ON SOCIAL WELFARE. Annual Forum (Convention Hall, Ambassador and Ritz-Carlton). Sec., Joe R. Hoffer, 22 W. Gay St., Columbus 15, Ohio.

***June 26-July 1—Atlantic City, N. J.**
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Chalfonte-Haddon Hall). Sec., R. J. Painter, 1916 Race St., Philadelphia 3, Pa.

July 18-22—San Francisco, Calif.
NATIONAL ASSOCIATION OF SANITARIANS. Annual Meeting (Jack Tar Hotel). Sec., Nicholas Pohlit, c/o Univ. of Denver, Denver 10, Colo.

Aug. 14-17—New York, N. Y.
AMERICAN PUBLIC WORKS ASSOC. Annual Convention (Manhattan Hotel and New York Coliseum). Exec. Dir., Robert D. Bugher, 1313 E. 60 St., Chicago 37, Ill.

***Aug. 14-17—Miami Beach, Fla.**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Meeting (Hotel Fontainebleau). Exec. Dir., Bernard F. Hillenbrand, 1001 Connecticut Ave. N.W., Washington 6, D. C.

Oct. 2-6—Philadelphia, Pa.
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Meeting (The Trade & Convention Center). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave. N.W., Washington 16, D. C.

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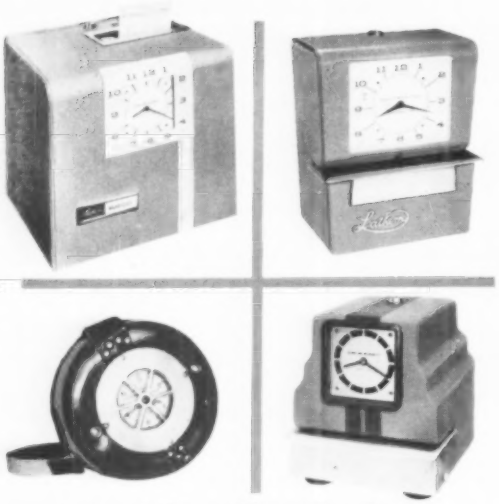

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MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

Revised Hydrology Text

HYDROLOGY, SECOND EDITION—*By C. O. Wisler and E. F. Brater. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.* 1959. 408 *pp.* $9.25.

This extensively revised text provides a basically sound and dependable method for the determination of floods that may be expected to occur with specified rare frequencies on any given stream. Two new chapters deal with the hydrology of semi-arid basins and the effects of snow upon the hydrology of an area. The second edition contains numerous improvements over and needed additions to the first edition which were discovered in ten years of classroom experience. Field problems discussed in the book include determination of spillway and bridge discharge capacities, methods of flood reduction, water conservation practices, evaluation of potential water power on a river, and evaluation of amount of water available for water supply or waste disposal on a river.

Economics of a Metropolis

ANATOMY OF A METROPOLIS—*By Edgar M. Hoover and Raymond Vernon. Harvard University Press, Cambridge 38, Mass.* 1959. 345 *pp.* $6.

This volume forecasts major changes in the economic life of the New York Metropolitan Region during the next two or three decades.

The authors base this on a $600,000 study, financed by the Rockefeller Brothers Fund and the Ford Foundation. Specifically they prophesy:

- That manufacturing will not grow as fast here as in the nation at large.
- That the St. Lawrence Seaway will slow growth modestly.
- That the New York region will remain the nation's business and financial capital.
- That most of the region's industry will not be lured away by promise of low wages elsewhere.
- That both Negro and Puerto Rican in-migrants from rural areas of low economic scales are adapting themselves to urban cultures and that densely populated slums are "thinning out."
- That, while goods handling will decrease, office space for administration will continue, and with it, a demand for high-priced apartment space.

Urban Regional Studies

METROPOLIS—*Office of Reports, The Ford Foundation, 477 Madison Ave., New York 22, N. Y.* 1959. 64 *pp.*

This little booklet is filled with striking photographs and ominously worded prose attempting to describe some of the activities of the Ford Foundation.

The pictures in the booklet are good, although the one after the cover looks so pat that it appears rigged (No roller skating, no bicycle riding, no dogs, no peddling—This is your playground). We also would not expect the Ford people to use another picture of a suburban group of homes, about completed, but with no landscaping. This is as unfair as taking a picture of Mr. Ford in his underwear. Give that same area about ten years and the home-owners will have decked those little dwellings with shrubberies and trees, enough to make the neighborhood beautiful as a garden spot.

Color-Slide Municipal Report

SEVEN KEYS TO THE CITY—*By Frank H. Backstrom, City Manager. Produced by Madison F. West, City Information Officer. Information Office, 301 City Building, 204 South Main St., Wichita, Kan.* 1959. 27 *pp.*

An unusual way of telling the public what the city is doing. This actually is a TV manuscript of a half-hour program. It will serve as a good guide for cities wanting the same type of citizen approach.

Local Planning Administration

LOCAL PLANNING ADMINISTRATION—*The International City Managers' Association, 1313 East 60th St., Chicago 37, Ill.* 1959. 467 *pp.*

This book's value is that it is one of the very few that tell a municipality how to set up a planning commission or planning department, and what to do when it is once set up. It is one of the series of texts developed by ICMA aimed at serving as teaching aids for its training course.

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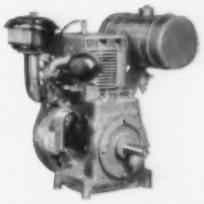

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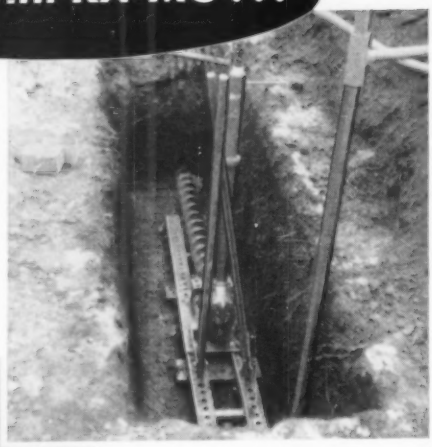

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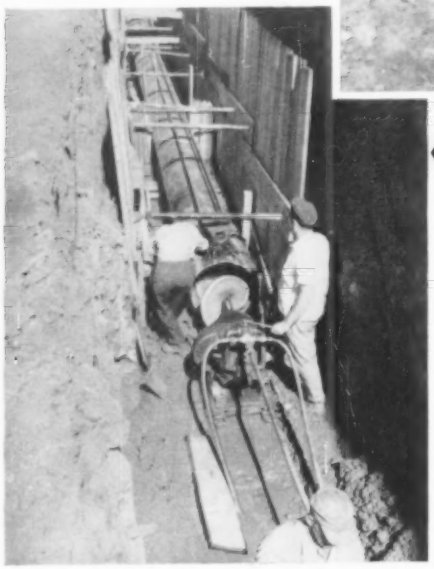

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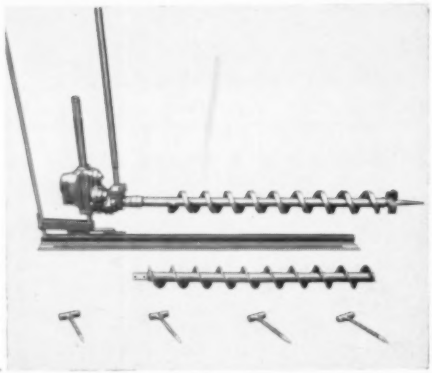

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Urban Renewal

CITIZENS IN URBAN RENEWAL—*By G. Yates Cook. Urban Renewal Division, Sears, Roebuck Co., 925 So. Homan Avenue, Chicago 7, Ill.* 1959. 40 *pp. No charge for single copies; additional copies, 25c.*

This booklet has been prepared to give Sears executives a documented guide book to assist them in working effectively with civic and municipal groups concerned with the problems of blight and decay in their local communities. It will be useful to any civic organization and helpful to local governments in enlisting public support for programs of this nature.

Personnel Appraisal

THE COMPLETE EMPLOYEE: A HANDBOOK FOR PERSONNEL APPRAISAL—*By Robert Winthrop Adams. Public Administration Service, 1313 East 60th Street, Chicago 37, Ill.* 1959. 72 *pp.* $2.

The book is essentially a vocabulary of some 2,000 carefully selected, practical words to be used in appraising people's mental capacity; work habits and attitudes; stability and ability to get along with others.

Water Supply Statistics

MUNICIPAL WATER FACILITIES COMMUNITIES OF 25,000 POPULATION AND OVER, CONTINENTAL UNITED STATES AND TERRITORIAL POSSESSIONS—*U. S. Department of Health, Education and Welfare, Washington* 25, D. C. 1959. 83 *pp.*

One of the publications that inspires those of a statistical mind to go to work. It records the population served, ownership of the utility, services and meters, storage safe yield, treatment rated capacity and demand figures as well as other significant data in the nation's public water supply for cities of this population.

Fire Protection

FIRE PROTECTION PRACTICES IN MICHIGAN MUNICIPALITIES, *Information Bulletin* #87. *Michigan Municipal League, 205 South State St., Ann Arbor, Mich.* 1959. 57 *pp.* $3.

The first edition of this present bulletin on Outside Fire Protection Practices in Michigan Municipalities was published in 1948. This publication presents some of the considerations in providing outside fire protection and gives information on the practices in a representative sample of Michigan municipalities. This report was prepared by Gerald C. Godwin, staff assistant of the Michigan Municipal League.

Real Estate Appraisal Practice

REAL ESTATE APPRAISAL PRACTICE—*American Institute of Real Estate Appraisers, 36 South Wabash Ave., Chicago 3, Ill.* 1958. 700 *pp.* $10.

A compilation of papers given at the 1957 Silver Anniversary Conference of the American Institute of Real Estate Appraisers. While the editors warn that it should not be considered a text, one nevertheless must be impressed by the wide range of subjects covered. The 58 separate papers discuss appraisal of everything from drive-in theatres to airports, from power lines to shopping centers, from land economics to luxury dwellings.

La Guardia

LA GUARDIA, A FIGHTER AGAINST HIS TIMES —*By Arthur Mann. J. B. Lippincott Co., 521 5th Avenue, New York, N. Y.* 1959. 384 *pp.* $6.

An exciting book about an exciting, controversial man who typified the essence of the area he represented. The book breathes the anguish that many melting-pot big cities have to endure during the chemicalization that must take place to make them a part of a democratic nation.

The author shows that La Guardia was intensely and passionately devoted to the principles of democracy, yet apparently would stuff a ballot box if this were necessary to win an election. He had an intense hatred of Tammany Hall and a remarkable ability to judge the future. He was the champion of the hyphenated American when class snobbery made the life of first-generation Americans difficult. He was the voice of the "little fellow" in his district, and eventually became the hope of "little fellows" from all walks of life throughout the nation.

The book, the first of two volumes, follows his career to 1933 when he was defeated for Congress.

City Planning

PLANNING LEGISLATION IN NORTH CAROLINA— *By Philip P. Green, Jr., Assistant Director, Institute of Government, Box 990, Chapel Hill, N. C.* 1959. 100 *pp.* $2.

A summary chiefly of use to cities in the Tar Heel State. It would have interest to other cities trying to develop a constructive legislative program in their states that would stimulate good community planning on the local government level.

Today's Urban Migrants

THE NEWCOMERS—*By Oscar Handlin. Harvard University Press, Cambridge 38, Mass.* 1959. 171 *pp.* $4.

Negroes and Puerto Ricans in New York present a special "immigration" problem similar to that facing most large cities. The author states that:

- The migration will continue as long as the demand continues for relatively cheap, unskilled labor.
- Both groups will best solve social disorder problems by developing communal institutions under responsible leadership. The reduction of prejudice and expansion of opportunities are essential.
- In general, these groups will prefer cohesive settlements rather than general dispersal throughout the whole population.
- Both probably will need governmental services for education and welfare as did other immigrant groups before them.

AIRPORTS

GENERAL—Small Airports. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1959. 36 pp. 20 cents.

ADMINISTRATION & GOVERNMENT

GENERAL—Public Employee Retirement Administration. Municipal Finance Officers Association, 1313 East 60th St., Chicago 37, Ill. 1959. 70 pp.

COLORADO—Proceedings of the Institute for Colorado Municipal Clerks and Finance Officers. Bureau of State and Community Service, Extension Division, University of Colorado, 1165 Broadway, Boulder, Colo. 1959. 42 pp.

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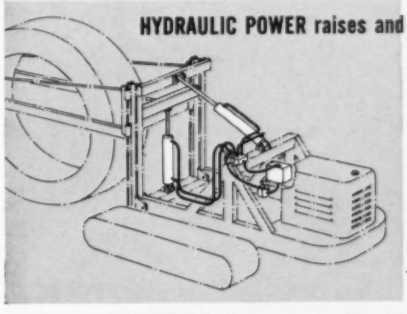

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IOWA—A Citizen's Guide to Iowa Municipal Government and Elections. By George B. Mather. Institute of Public Affairs, State University of Iowa, Iowa City, Iowa. 1959. 59 pp. 50 cents.

ANNUAL REPORTS WORTH READING

ARLINGTON COUNTY, VA.—Department of Public Service Annual Report. Department of Public Service, Court House, Arlington 1, Va. 1959. 93 pp.

SAN FRANCISCO, CALIF.—Annual Report of the Department of Public Works, City and County of San Francisco. Department of Public Works, City Hall, San Francisco 2, Calif. 1959. 185 pp.

FINANCE & TAXATION

ALASKA—Financial Data Regarding the Incorporated Towns and Cities in Alaska 1958. Department of Natural Resources, Division of Tourist and Economic Development, Juneau, Alaska. 1959. 10 pp.

CLEVELAND, OHIO — Government Costs: Questions for Community Decision. Cleveland Metropolitan Services Commission, 608 The Arcade, Cleveland 14, Ohio. 1959. 51 pp. $2.

HONOLULU, CITY AND COUNTY OF, HAWAII — Controller's Annual Report. Controller's Office, City and County Hall Honolulu 13, Hawaii. 1959. 107 pp.

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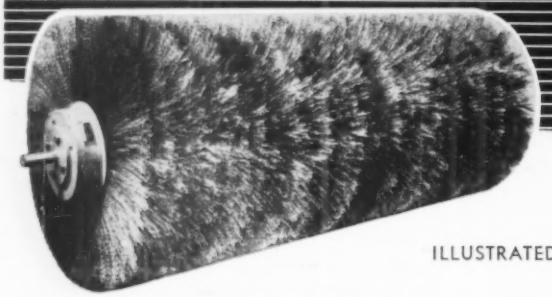

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HEALTH & WELFARE

GENERAL—Selected References on Services for Unmarried Mothers. U. S. Department of Health, Education and Welfare, Social Security Administration, Children's Bureau, Washington 25, D. C. 1959. 7 pp.

PARKS & PLAYGROUNDS

GENERAL—Recommended Practice for Design, Equipment and Operation of Swimming Pools and Other Public Bathing Places. American Public Health Association, Inc., 1790 Broadway, New York, N. Y. 1957. 60 pp.

PLANNING, ZONING & HOUSING

GENERAL—Community Facilities, A List of Selected References. National Association of Home Builders, 1625 L St., N.W., Washington 6, D. C. 1959. 170 pp.

GENERAL—Planning 1959. American Society of Planning Officials, 1313 East 60th St., Chicago 37, Ill. 1959. 189 pp. $5.

ABILENE, TEX.—The Abilene General Plan. City Planning Commission, Abilene, Tex.; Erling Helland Associates, 101 Wright Bldg. Annex, Tulsa 3, Okla.; and Pacific Planning and Research, 546 University Ave., Palo Alto, Calif., Consultants. 1959. 32 pp.; map, tables. $2. Copies available from any of the above.

BERKELEY HEIGHTS, N. J.—Master Plan Studies, Summary Report. Office of the Mayor, Town Hall, Berkeley Heights, N. J. 1959. 20 pp. $2.

BORDENTOWN TOWNSHIP, N. J.—A Plan for Future Development. Office of the Mayor, Town Hall, Bordentown, N. J. 1959. 4 pp. $2.

BRISTOW, OKLA.—A General Plan Study. The Institute of Community Development, The University of Oklahoma, Norman, Okla. 1959. 57 pp.

LONG ISLAND, N. Y.—Developing Long Island. Bureau of Business and Community Research, Hofstra College, Hempstead, Long Island, New York. 1959. 50 pp. $4.

HAMILTON, OHIO—Land Use Survey 1959. City Planning Commission, Hamilton, Ohio. 1959. 20 pp.

NEW YORK, N. Y.—Planning Homes for the Aged. F. W. Dodge Corporation, 119 West 40th St., New York 18, N. Y. 1959. 119 pp. $12.75.

SEWERAGE & SEWAGE PURIFICATION

BUFFALO, N. Y.—Annual Report of the Buffalo Sewer Authority, 1958-1959. Buffalo Sewer Authority, City Hall, Buffalo, N. Y. 1959. 91 pp.

SOILS

GENERAL—Procedures for Testing Soils. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. 1959. 544 pp. $6.75.

TRAFFIC

PHILADELPHIA, PA.—Traffic Accident Facts, 1958. Bureau of Traffic Engineering, Department of Streets, City Hall, Philadelphia, Pa. 1959. 35 pp.

YOUNGSTOWN, OHIO—Major Streets Plan. City Planning Commission, City Hall, Youngstown, Ohio. 1959. 25 pp. $1.

URBAN RENEWAL

CHICAGO, ILL.—Citizens in Urban Renewal. Urban Renewal Division of Sears, Roebuck and Co., 925 S. Homan Ave., Chicago 7, Ill. 1959. 40 pp. Single copies are free. Multiple copies 25 cents each.

PHILADELPHIA, PA.—Workable Program for Urban Renewal. 1958. Office of the Mayor, City Hall, Philadelphia, Pa. 1959. 21 pp.

WATER

LITTLE ROCK, ARK.—Water Supply for Greater Little Rock. Board of Water Works Commissioners, Little Rock, Ark. 1959.

VIRGINIA—Water Rates in Virginia Cities. 1959. 18 pp. $1.—Water Rates in Virginia Towns. 1959. 25 pp. $1. Both available from the League of Virginia Municipalities, 905 Travelers Building, Richmond 19, Va.

REPRESENTATIVE MUNICIPAL BOND ISSUES

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12/ 9/59	Lafourche Par., La.	1,000	Public Improvement	13⅔	4.00	4.06
12/ 9/59	Omaha, Neb., Metro. Utility Dist.	1,500	Gas Revenue	3½	3.60	3.59
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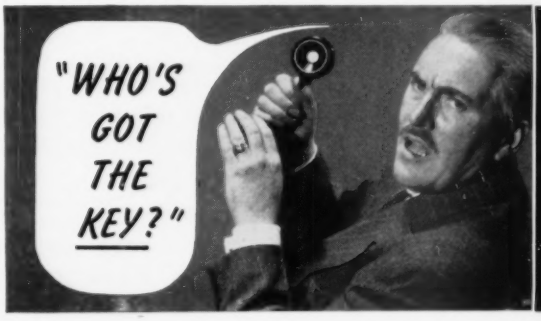

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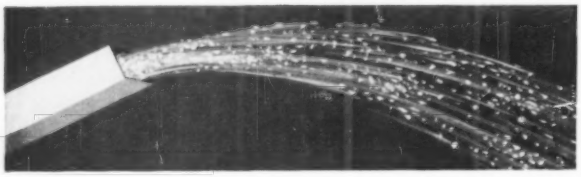

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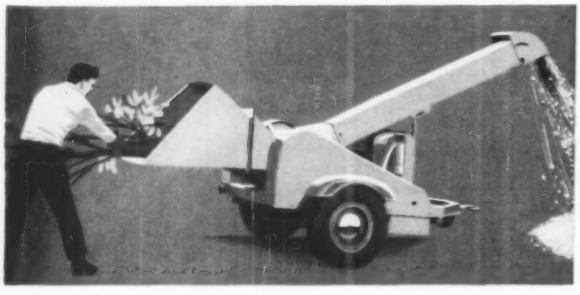

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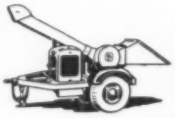

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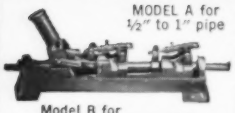

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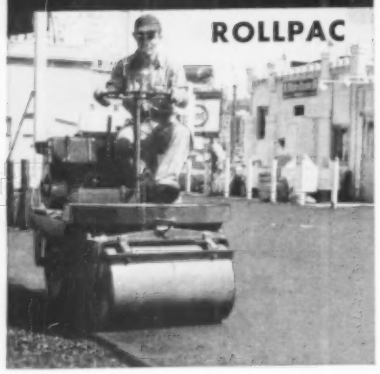


Whether your job is . . .
Crease rolling . . . Driveways . . . Parking lots . . . Patching . . . Tennis courts . . . Sod rolling . . . Maintenance . . . you won't outgrow the usefulness of a Rollpac.

That's why thousands of contractors, landscapers, institutions and others make Rollpac their "number one" unit. One week on *your* job will prove to you why Rollpac is the top selling one-ton roller in the United States.

VIBRAPAC

Here's a two-ton vibratory roller that produces compaction to equal or exceed static rollers weighing eight tons! Vibrapac is 100% American designed and built specifically for asphalt and soil compaction—no corrugation of surfaces. A single lever clutch shifts from static to vibratory action. Works in close places.

Easy to transport with Rolcor Trailer.

WRITE FOR FULL INFORMATION AND LITERATURE

ROSCO MANUFACTURING CO.
ROLCOR DIVISION
3118 Snelling Ave. • Minneapolis 6, Minn.

Purchasing News

tank is of one-piece electric welded construction. Large clean-cut hatches are an added convenience. Tank capacity is available in sizes from 500 to 3,000 gallons and pumping volume is 500 gpm.

A sprinkler with 120-pound pressure is also available for flushing down streets. For additional information and illustrated literature A-429, write BAUGHMAN MANUFACTURING CO., JERSEYVILLE, ILL., or use the Post Card on Page 56. Circle No. 817.

Case Unveils 1960 Product Line

Case's Model W-3, 52-hp wheel loader with bucket capacity of 15 cubic feet, is shown equipped with a front-mounted backhoe that enables it to dig trenches to a depth of 14 feet.

The J. I. Case Company unveiled its entire product line for 1960 in a "world premiere" held for its dealers at Bal Harbour, Fla.

The line now covers a complete series of hydraulic-drive wheel tractors, with streamlined air-cooled, all-weather cabs; a U. S.-manufactured small diesel tractor to compete with European imports; and a full line of construction, road-building and materials handling wheel and crawler tractors and equipment. The company will market a new hand and power tool line by a fleet of more than 500 specially designed trucks that have a display window built right into them.

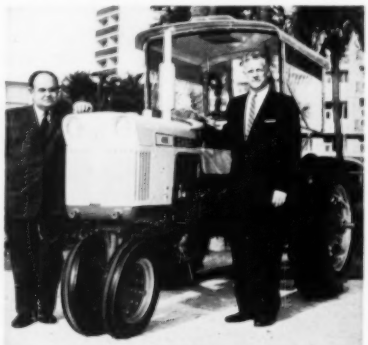
Of interest to local governments is the company's expanded line of wheel loaders and equipment, the most recent being the 2,500-pound capacity gas-powered Model W-3, with a 15-cubic-foot bucket. It is the first of several new units designed to give Case a full range of wheel loaders up to 3-cubic-yard capacity, with provision for larger light materials handling buckets and a full line of attachments.

The W-3 has a hydraulic torque converter-drive that improves its push power over conventional gear-shift units. Traction also is increased because the bucket can be "eased" into the ground or stockpile while extra power is applied smoothly through an infinite number of speed ratios, without spinning the wheels or stalling the engine. In addition, the torque-converter cushions shocks, automatically adjusts travel speeds to varying loads and completely eliminates clutching and shifting under load. A simple lockout lever, mounted on the dash panel, permits switching from torque converter to direct drive on-the-go, for fast street or highway travel between assignments, and for safer downhill operation.

The W-3 has a "synchronized shuttle" transmission that permits smooth shifting from forward to reverse (and vice-versa) in one motion without clashing gears. Reverse speeds are 27% faster than forward in each gear, thus insuring extremely fast loading cycles.

Further ease of operation is provided by a hydraulically actuated power-steering system, which gives a 90% power assist for easy fingertip turning under full load, yet does not let the tractor wander off-course in deep ruts or broken ground.

The W-3 comes equipped with a standard 15-cubic-foot capacity loader bucket, with ⅔-cubic-yard tread-width bucket, ⅔-cubic-yard dry material bucket, and a 1-cubic-yard snow bucket, available as optional equipment. Also optional and interchangeable with the loader



Marc B. Rojtman, president, and John H. Brinker, executive vice-president, with one of Case's new hydraulic drive wheel tractors, equipped with all-weather air-cooled cab.

PAYLOADER®

does work of crew with 4-in-1 BUCKET

The Town of Gates, N. Y. is a thriving, progressive community, with 60 miles of roads, 42 of which are well maintained by the Gates Highway Department. When the time came to replace its tractor-shovel, a "PAYLOADER" equipped with a Drott 4-in-1 bucket was selected. It is used for new construction, general maintenance, snow removal, right-of-way clean-up, stockpile handling and scores of other jobs the year around.

"AN ALL PURPOSE MACHINE"

George Biesenbach, Highway Supt. is really enthusiastic about his winning combination, reporting that, "It is an all-purpose machine that saves us time and labor in nearly all our work. On-the-job experience is proving that our PAYLOADER with Drott 4-in-1 bucket and a single operator can do many jobs alone which used to take extra labor with a regular tractor-loader. We really like the PAYLOADER because of its unmatched versatility and because it does our jobs better, faster and more economically."

A "PAYLOADER" with 4-in-1 will also give you job versatility you've never before experienced . . . use it as a bulldozer, as a scraper, a clamshell or as a standard excavating-loading bucket. Find out what it will do for you. Return the coupon or see your Hough Distributor, today.

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THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

With clam raised, the "4-in-1" bulldozes and backfills trenches, also levels and grades.

The Drott bucket also serves as a conventional bucket for excavating or loading.

THE FRANK G. HOUGH CO.
710 Sunnyside Avenue, Libertyville, Ill.

Please send data on complete "PAYLOADER" line and attachments.

Name.....

Title.....

Govt. Unit.....

Street.....

City.....State.....

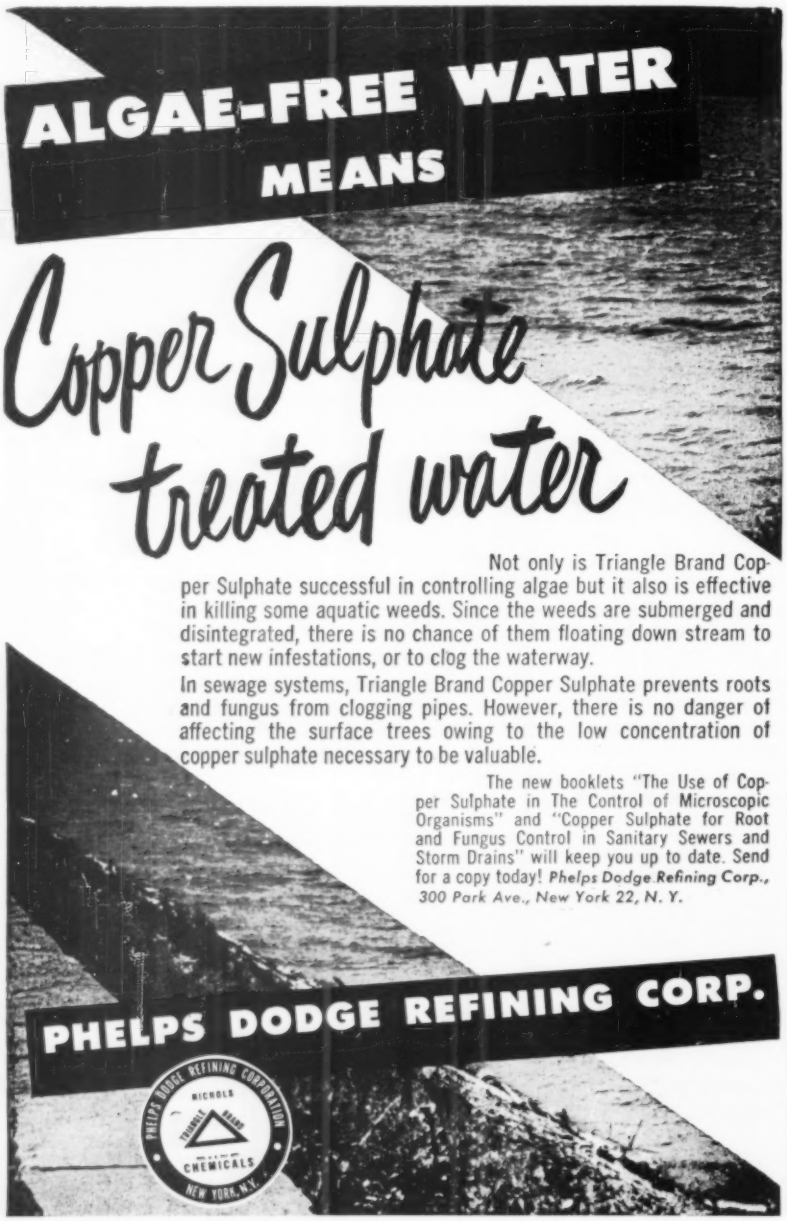
2-8-3

bucket are pallet forks, log forks, a dozer blade, and a crane boom.

A completely new heavier duty backhoe has been designed for the W-3. It digs to a depth of 14 feet, reaches 20 feet from the front axle, and has an operating radius of 16¾ feet from pivot. Hydraulic, foot-operated swing controls enable the operator to swing the hoe boom 180°, leaving both hands free to maneuver bucket controls while swinging. The operator can swing the boom at full speed with a cushioning effect at the end of the stroke. A new, adjustable swing-away seat is said to provide greatly increased comfort and job visibility for the operator.

The W-3 backhoe is available with a wide variety of optional buckets, including: 18-, 24- and 30-inch standard design trenching buckets; 12-, 16- and 30-inch bellhole buckets; a 36-inch combination grave and bellhole bucket and a 38-inch grave bucket.

The backhoe is interchangeable with a rear counter-weight should the owner wish to operate the loader alone. Use of rear-mounted Eagle Hitch also makes it possible to attach an all-purpose blade with scarifier, a post-hole digger, rotary cutter, rear-mounted mower, or other rear-mounted attachments, for added versatility. For additional information on the Case line, write J. I. Case Company, Racine, Wis., or use the Post Card on Page 56. Circle No. 822.


ALGAE-FREE WATER
MEANS
Copper Sulphate
treated water
Not only is Triangle Brand Copper Sulphate successful in controlling algae but it also is effective in killing some aquatic weeds. Since the weeds are submerged and disintegrated, there is no chance of them floating down stream to start new infestations, or to clog the waterway.
In sewage systems, Triangle Brand Copper Sulphate prevents roots and fungus from clogging pipes. However, there is no danger of affecting the surface trees owing to the low concentration of copper sulphate necessary to be valuable.
The new booklets "The Use of Copper Sulphate in The Control of Microscopic Organisms" and "Copper Sulphate for Root and Fungus Control in Sanitary Sewers and Storm Drains" will keep you up to date. Send for a copy today! Phelps Dodge Refining Corp., 300 Park Ave., New York 22, N. Y.
PHELPS DODGE REFINING CORP.
PHELPS DODGE REFINING CORPORATION
NICHOLS
TRIANGLE BRAND
CHEMICALS
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Opens Denver Subsidiary

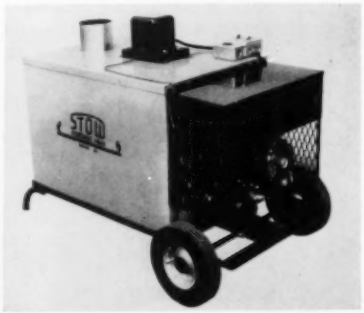
Officials of the Keuffel & Esser Co., Hoboken, N. J., have announced the establishment of a new subsidiary branch in Denver, Colo.—Keuffel & Esser of Colorado, Inc.

K&E products formerly were distributed exclusively by the Kendrick Bellamy Co. in Denver. The new firm will retain its former address. John Harvey has been appointed branch manager.

Keuffel & Esser is America's oldest and largest manufacturer of quality engineering and drafting equipment and materials.

Indirect-Fired Portable Space Heater

This oil furnace on wheels blows air around the outside of a completely enclosed combustion chamber, producing heated fresh air instantly and in large volume. Fumes can be vented out the top, thereby



The Stow ID Space Heater can be used where normally no central heating is provided, but where work has to be done, such as in sewage and water plant pipe galleries, on construction jobs, in temporary buildings.

meeting safety specifications. Ducts can be provided to pipe heat to a specific area for spot heating.

Two models have been put on the market, the S200ID and the S420ID. The former produces 200,000 BTU of heat at a rate of 1600 cubic feet of warm air per minute; the latter produces 420,000 BTU at a rate of 4500 cubic feet of air per minute. It has a built-in room thermostat, permitting selection of desired temperature. The manufacturer reports that no attendant is required since safety controls anticipate any emergency. The fire goes out immediately when the thermostat switch is snapped off or power is cut off. Both models have a low oil cut off switch and an electric solenoid shut off. Ignition is automatic—torches or matches are not needed.

For full facts, write Stow Mfg. Co., 192 Shear St., Binghamton, N. Y., or use the Post Card on Page 52. Circle No. 843.

Relief Map of U. S. Shows All 50 States

New three-dimensional views of the United States, and also the world, showing the shape of the land as it really is, have been prepared by Areo Service Corp., Philadelphia, Pa. Both of the 28″ x 18″ plastic maps, the first to be produced in this size, show mountains and valleys in detailed relief that stands up nearly a half-inch.

The detailed 50-state U. S. map shows 4,000 geographic names. It includes 2,000 cities and towns, 1,000 rivers and lakes, 150 national parks and monuments, and over 200 mountain ranges and peaks, plus other features. Its scale is 1″ equals 17 miles. A handy 26″ x 14″ map index slides out from the back of the map and locates all of the place names shown. Like the map, this index is printed on vinyl plastic.

The companion world relief map features nearly 2,500 place names—1,200 cities and towns, 400 large bodies of water, 450 islands, mountain ranges and peaks, and other features. All place names appear

Champion Fire Apparatus

W. S. DARLEY & CO.
CHICAGO 12

NOW!

a NEW solid-color PVC
POLY-CONE*

tough, durable, no seams, will not CRACK, TEAR or BREAK!

This new SAFE-T-CONE never needs repainting. Just wash it with soap or solvents. Made of polyvinyl-chloride to produce the toughest, *most durable cone on the market.* Outlasts ordinary cone many times . . . . without upkeep!

*Polyvinyl-chloride

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SAFE-T-CONE® TRAFFIC GUIDES

2191

All-Rubber SAFE-T-CONES available in 3 SIZES!

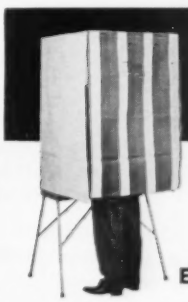
Painted or Reflectorized ALL RUBBER

Regular all-rubber SAFE-T-CONES, now better than ever. Painted standard red and yellow or reflectorized.

Plastic or All-Rubber FLUORESCENT

New Poly-Cones and All-Rubber cones available in brilliant orange-red fluorescent for extra brilliance, day or night.

SAFE-T-CONES made only by Radiator Specialty Co.
Charlotte, N. C.



Douglas

Uni-pack

COLLAPSIBLE ELECTION BOOTHS

Packaged for easy use, convenient movement and storage!

Douglas Uni-pack provides 6'1" x 28" x 28" single stall booth yet collapses to suitcase size. Easy to carry and set up by any woman election offical. Ideal for augmenting voting facilities during rush periods. Now being used by all regional offices of National Labor Relations Board.

Vote by Ballot with DOUGLAS VOTING BOOTHS

★Small investment ★Storage and transportation costs are nil ★No breakdowns and maintenance ★No standing in line by use of plenty of low-cost units ★Only sure way of casting your personal vote

OTHER Douglas ELECTION EQUIPMENT

- Model B Collapsible Voting Booths
- All-Metal Folding Booths
- Collapsible Ballot Boxes
- Collapsible Election Tables
- Rigid Ballot Boxes
- Nested Ballot Boxes
- Voting Booth Lights
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For further information, contact your local dealer or write for FREE catalog and prices to:

DOUGLAS MFG. CORP.
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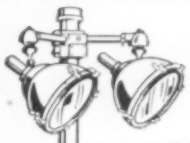
★ Serving the entire United States and Puerto Rico since 1910



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the Original

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MALLEABLE IRON METAL-PIPE POLE BASE

A Rugged Support for Threaded Pipe Uprights With Chamber for Splicing and Grounding.

Turn galvanized pipe into threaded hub of galvanized base. Top off with fixture. Install over embedded anchor bolts and conduit stubs. Splice and ground through hand-hole. Four sizes: 2", 2½", 3", 4". Plain or 3-pole receptacle cover. Bulletin #25.

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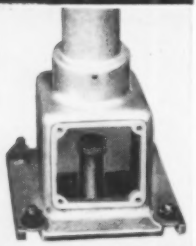

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HOPE ELECTRICAL PRODUCTS CO.

53 Long Ave., Hillside, N. J., ELizabeth 4-7837

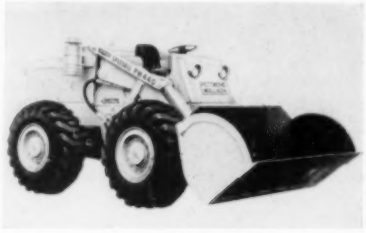
Purchasing News

on the pull-out map index. Map scale is 962 miles to the inch. It is the same size and colors as the U. S. map.

Cost of the realistic eight-color maps is about $10 each. Larger, 64" x 40" counterparts of these 28" x 18" maps, first published a few years ago by Aero Service, cost nearly $50. Both the U. S. and world maps have mahogany-colored plastic frames and are delivered ready to hang. For additional information, write ROBERT SOHNGEN, AERO SERVICE CORP., 210 E. COURTLAND ST., PHILADELPHIA 20, PA., or use the Post Card on Page 56. Circle No. 818.

Introduces Rubber-Tired Tractor Shovel

Model PM-440 is the largest in a completely new line of Speedall tractor shovels now being brought out by Pettibone Mulliken Corp. The new 11,000-pound capacity rubber-tired unit has a lifting capacity of 21,000 pounds and a breakout force of 24,800 pounds.



Speedall PM-440

Depending upon the weight of the material being handled, buckets are furnished in S.A.E. heaped capacities of 3, 3¼, 3¾, and 4¼ cubic yards. Bucket rollback at ground level is 40°. Clearance under the bucket hinge pin is 11′ 10″; reach from the front tires to the bucket lip is 3′ at the maximum dumping height of 9′; at 7′ dumping height reach is 4′ 5″.

Wide base 20.5 x 25 high flotation tires are supplied as standard equipment. Power is supplied by either a 152-hp GM diesel or a 175-hp Cummins diesel engine. Standard

New (MB) Pacemaker 88 Line Marker mounts on Jeep or any light duty truck!

- Fast highway speed between jobs
- High speed production of 1, 2, or 3 lines, solid or intermittent
- Instant "Finger Touch" all-electric Intermittent Control
- Steerable guns for fast, accurate retracing

Here's a big striper with the versatility to mark centerlines, or centerlines and edge stripes simultaneously. Fast and maneuverable, the low-cost M-B Pacemaker 88 includes an adjustable guide pole and caster wheel, air lift of outrigger guns, positive reflective bead control, plus many more exclusive features. Note full-vision, high, safe position of operator.

Send for information on the complete line of M-B markers, including custom designed heavy duty models specifically designed for your use that are comparable in price to "assembly line" machines. M-B Corp., New Holstein, Wis.

M-B CORPORATION
NEW HOLSTEIN, WIS.

PACKER BODIES • LINE MARKERS • SWEEPERS

equipment also includes Speedmatic power shift transmission, planetary axles, Allison torque converter; 4-wheel hydraulic power-assist brakes; dual hydraulic cylinder assisted steering; 4-wheel drive; automatic bucket leveler and hydraulic system shock absorber. For additional information and specifications, write PETTIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL., or use the Post Card on Page 56. Circle No. 805.

New Ons and Offs for Street Lighting

Photoelectric luminaires for automatically switching street lighting on and off are now available for all types of light distributions and for either incandescent or mercury lamps.

Photoelectric relays of either the plug-in or twist-lock type attach directly to luminaire heads and are fully wired for automatic operation. Standard glassware enclosed, horizontal mercury, or open reflector luminaires are described in *Bulletin* 20-A, which can be obtained from JOSLYN MFG. AND SUPPLY CO., 155 N. WACKER DRIVE, CHICAGO 6, ILL., or by using the Post Card on Page 56. Circe No. 804.

Asphalt Institute Elects Officers

Eugene M. Stone, president of the Empire Petroleum Co., Denver, Colo., was elected Chairman of the Board of the Asphalt Institute, succeeding Don L. Nielsen of the Union Oil Co. of California.

In other action, winding up the annual 2-day membership meeting, the following officers were named as regional vice presidents:

William N. Ruppel, Atlantic Refining Co., Philadelphia; A. R. Curtis, Esso Standard Oil Co., New York; L. W. Walker, Leonard Refineries, Inc., Alma, Mich.; J. W. McCracken, Byerlite Corp., Cleveland; E. E. Scholer, Shell Oil Co., St. Louis; F. H. Brown, Mobil Oil Co., Kansas City, Mo.; Marshall O. Hardy, D-X Sunray Oil Co., Tulsa; A. T. Van Pelt, Berry Asphalt Co.,

For Better Patches Heat and Remix Stockpiled Asphalt with

HEAT-A-MIX

TAILGATE ASPHALT MIXER

For heating and remixing stockpiled asphalt. Can be operated in forward and reverse for better blending of material. No fire in pugmill—asphalt made hot and workable by indirect heat. Has its own gasoline engine and propane or kerosene heating system. Mounts quickly and easily on truck tailgate. Removable and adjustable legs make it easy to transfer unit from one truck to another without use of crane or hoist.

HEAT-A-MIX

WYLIE MANUFACTURING CO., INC.
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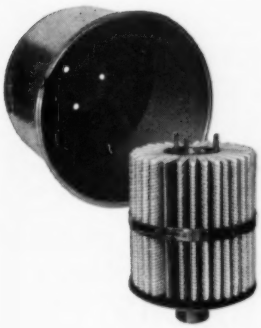
FOR OIL-FREE FILTRATION



"DA" Dry-Type

Gives better than 98% efficiency on 2-micron mean diameter particles and 100% filtration on 5-microns or larger. Suitable for installations where—oil-free air is required; extremely high degree of filtration is required; where air velocity varies from one period to another; where dirt concentration is relatively low. Can be sized to meet any pressure drop requirement. Ask for Bulletin DA-1056.

AIR-MAZE
The Filter Engineers

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Subsidiary of ROCKWELL-STANDARD Corporation

NETCO CATCH BASIN CLEANER
Is Serving Many States, Cities and Turnpikes Throughout This Broad Land

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- Cumberland, Maryland
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- Lansing, Michigan
- Jersey City, N. J.
- Worcester, Mass.
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Easily mounted on any short wheel base truck with 8 ft. in back of the cab, the NETCO with orange peel or clamshell bucket can be operated continuously, averaging 20 to 30 catch basins a day. Hoisting capacity up to 1500 lbs.

NETCO does almost three times as many basins a day at less than half the cost per basin compared with old-fashioned manual methods.

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THE BEST
DITCH WITCH
TRENCHER
Other trenchers cost "More or Less"
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BUT DITCH WITCH PRODUCES MORE TRENCH FOR LESS MONEY
Model M-322 Pictured
TRENCH SIZES FOR 4 MODELS:
16" 12" 10" 8" 6" 4" 3"
K-1 30 HP
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M3 9 HP
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2' 3' 4' 5' 6'
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USE FOR:
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Purchasing News

Magnolia, Ark.; C. W. Turner, American Bitumuls and Asphalt Co., San Francisco, and Charles P. Taylor, Wilshire Oil Co. of California, Los Angeles. J. J. Tumpeer, Witco Chemical Co., Inc., New York, continues in office as treasurer.

Integral Ballast Luminaire

Integrally ballasted mercury luminaires for high level lighting of streets, highways and parking areas are available from Line Material Industries. They are equipped with an adjustable mogul socket, a one-piece heat-resistant glass refractor, and a 120/240, 277, or 240/480-volt constant wattage or reactor ballast. A series ballast is also available. The luminaires are furnished with or without photoelectric control and accommodate clear or color-improved mercury lamps rated through 400 watts. For details, write LINE MATERIAL INDUSTRIES, MC-GRAW-EDISON CO., MILWAUKEE 1, WIS., or use the Post Card on Page 52. Circle No. 839.

One-Inch Sealed Register Water Meter

This new larger-capacity magnetic drive Sealed Register water meter has a capacity of 50 gpm compared with capacities of 20 and 30 gpm, respectively, for the ⅝" and ¾" models that Rockwell Manufacturing Co. has been marketing.

Special features are (1) hermet-

Faster LOCATING!
LOWER SERVICE COSTS
with the improved AQUA VALVE BOX LOCATOR!
Your Name In Gold FREE!
$32.50 F.O.B. Cin., Ohio
STOCK this useful tool for every service CAR and CALL • Speed • Locating • Keep Customers Happy
• NO WIRES, BATTERIES or SWITCHES—simple, powerful magnetic action, factory adjusted to YOUR geographical location assures unfailing results!
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• GUARANTEED—to function regardless of weather, surface or ground cover!
• NATION'S MOST WIDELY USED LOCATOR!
• 15-DAY FREE TRIAL—No money! No obligation! You be the judge!
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CONCRETE TESTERS
THE WORLD'S FINEST LOW COST PLANT AND JOB-SITE TESTERS For
CYLINDERS
CUBES
BLOCKS
BEAMS
PIPE
IF IT'S A CONCRETE TESTER YOU NEED-GET IN TOUCH WITH
FORNEY'S, Inc.
TESTER DIVISION
P. O. BOX 310 • NEW CASTLE, PA.

ically sealed register to end the problem of dirt, water and condensation that fogs dials; (2) a powerful magnetic drive which eliminates the need for a stuffing box, an exposed intermediate train and a driving dog, and (3) the proven oscillating piston principle for long life and accurate measurement.

The entire unit contains only 15 stock parts; only two moving parts operate in contact with water. Conventional meters contain from 50 to 85 moving parts, of which not less than nine parts operate within water.

Straight reading registers calibrated in cubic feet or gallons with center sweep hand are furnished. For further information, write ROCKWELL MFG. CO., MUNICIPAL AND UTILITY DIVISION, 400 N. LEXINGTON AVE., PITTSBURGH 8, PA., or use the Post Card on Page 52. Circle No. 831.

Plastic Pipe Packaging Unit

Evanite Plastic Co. of Carrollton, Ohio, has developed a packaging unit that enables one man to carry 100 feet of 4-inch plastic sewer pipe.

The new unit is being used for all Evanite plastic pipe—sewer pipe, perforated drainage pipe and potable water pipe — in diameters through 6 inches. It is called the Triangle Packaging unit and consists of ten 10-foot lengths of clear green Evanite plastic pipe (the standard package) strapped together to form a triangle. Tests have shown it to be easier to handle on the job, as well as in storage, and it is reported that no precautions are necessary with Evanite plastic pipe when the packaging unit is utilized.

For additional information on the Triangle Packaging unit or on plastic pipe, fittings and adaptors, write EVANITE PLASTIC CO., DIVISION OF EVANS PIPE CO., CARROLLTON, OHIO, or use the Post Card on Page 56. Circle No. 814.

LOW FIRST COST! LOW MAINTENANCE COST!

Midwest
TAK-A-PART PICNIC TABLES

WALK-THRU DESIGN No braces or frames to step over.

SLIDE-EASY, SKID-TYPE FEET . . . Protect turf from damage when moved.

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- **AUTOMOTIVE-TYPE FINISH** of high baked green enamel.
- **RIGID, STURDY, NON-TIPPING** . . . 1½" heavy welded steel tubing.
- **SUPPORT ANY LENGTH TABLE** . . . Use 2 frames for tables up to 10 ft.; third frame for longer tables.
- **BUY METAL PARTS ONLY** and use your own lumber.
- **OR BUY TABLES COMPLETE** with lumber precut and precision drilled.

Exclusive **KIDDIE TABLE**

Same walk-in design and skid-type feet. A delight for little tots.

- **COMBINATION BENCH 'N TABLE** Converts quickly from 6' bench to 6' table with attached bench.
- **STURDY 4-FT. BENCH** Counter balanced frame of 1⅜" welded steel tubing.

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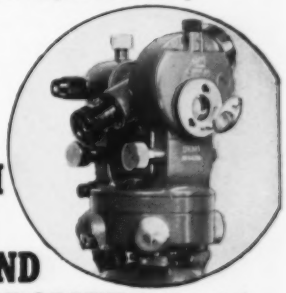

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- Exceptional portability and precision.
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- Direct reading to 10". Estimation to 1". Average working accuracy —3-4 secs.
- Can be used with electric lighting unit for night work.

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Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.

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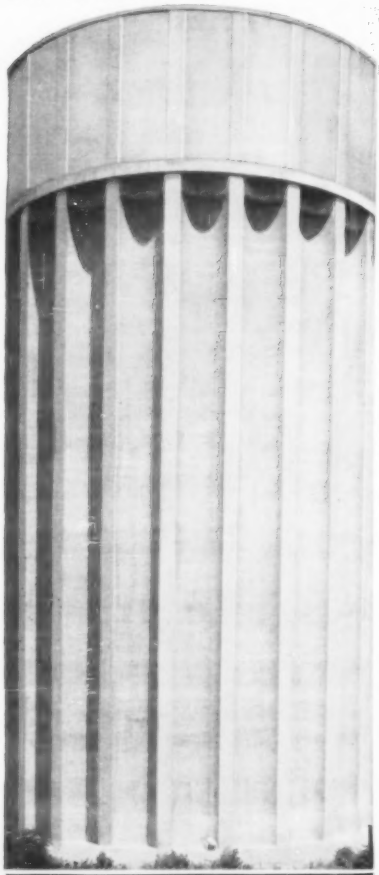
120 Grand St., White Plains, N.Y.

MORE THAN 2000 PRESTRESSED CONCRETE TANKS IN SERVICE



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- Longest service life of any tank
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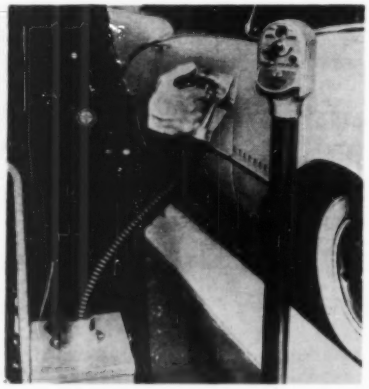
Purchasing News

2-Second Parking Meter Collection System



This system, adaptable for use on "Mark-Time" meters, is said to be the fastest, safest and most efficient means of collecting coins on the market today. It features a "2-second" speed collector, mounted on a large-diameter vinyl plastic reinforced hose, which unlocks the meter's coin door with a minimum of effort. Coins fall into the vault; the door is automatically locked as the collector is withdrawn. Coins are not seen or touched from meter to vault.

The heavy-gauge welded aluminum vault is padlocked to a tubular aluminum frame with large rubber tires (aircraft type). The vault can be easily removed from the cart by authorized personnel.

For additional information, write M. H. RHODES, INC., HARTFORD 6, CONN., or use the Post Card on Page 52. Circle No. 827.

Executive Changes

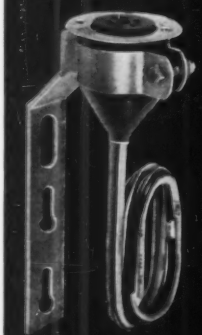
Three changes in management positions of the Texas Vitrified Pipe Co., and the Southwestern Plastic Pipe Co., Mineral Wells, Texas were announced at the annual luncheon meeting of directors and stockholders.

J. F. Bailey, general manager and secretary of the companies, is now executive vice-president.

David E. Clemens, formerly assistant general manager of the Texas Vitrified Pipe Co., has been named a director and also secretary and general manager of the clay pipe company.

E. W. Hendrick, general manager

ADAPTABLE FOR ANY MOUNTING ARRANGEMENT



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SunSwitch DIVISION

RIPLEY COMPANY, INC., MIDDLETOWN, CONN.

of the Southwestern Plastic Pipe Co., is now Secretary and a director of the firm. He continues as managing head of the plastic pipe manufacturing company.

Low-Cost Aerial Ladders

These ladders can be raised, extended and rotated to reach overhead working positions in seconds. Positioning is easy and accurate, eliminates dangerous reaching and provides the operator with a safe, comfortable working platform. They are designed for installation on the Service-Master all-purpose service body or other suitable vehicles, and are available in two models.

Model ML is elevated by a hydraulic cylinder powered by a manually-operated pump. Model LH has an electric motor-driven pump powered by the vehicle's electrical system. Both models have hand-operated mechanical extension and rotation and can be rotated full-circle in either direction and in a vertical arc from below horizontal to a nearly vertical position. An adjustable three-plane working platform provides comfortable footing, regardless of ladder position. Each model can be furnished in 26′ and 30′ sizes.

For additional information, write SERVICE-MASTER AERIAL LADDER, MCCABE-POWERS BODY CO., 5900 BROADWAY, ST. LOUIS 15, MO., or use the Post Card on Page 56. Circle No. 819.

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- INDUSTRIAL WASTES
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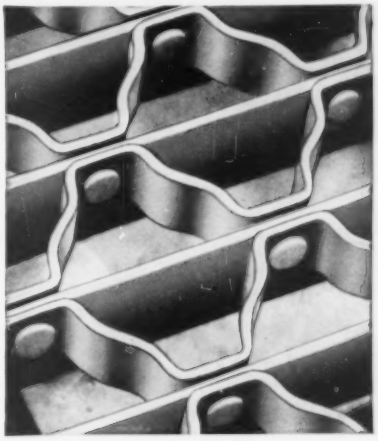
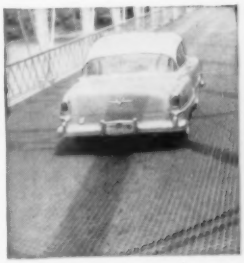
New "CK" BRIDGE DECKING ENDS WEAVING OF CARS



Modification of the original Irving Type V Decking has eliminated "weaving" on open mesh steel floors. The improvement is effected by a 1/16" elevation difference of the crimped bars over the straight bars.



"CK" Decking, successfully field-tested for 4 years, has the same advantages of safety, strength, durability and self-maintenance as standard Type V Decking

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ABOUT PEOPLE

The board of directors of Keasbey & Mattison Co., Ambler, Pa., has elected Norman L. Barr vice president-sales and a member of the board. Mr. Barr joined K&M in 1948 as a salesman, became Atlanta district manager in 1953, general manager of the asbestos-cement pipe division in 1956, and assistant to the president of the company in October 1958. He has been general sales manager since January 1959.

N. L. Barr

Another announcement from K&M reports the retirement of D. W. Widmayer, vice president, marketing consultant, and member of the board of directors since 1948, after over 42 years of service with the company.

The appointment of Marsh W. Bull as western regional sales manager for **Keuffel & Esser Co.,** Hoboken, N. J., has been announced by Robert Keller, K&E sales manager Mr. Bull will supervise sales activity of all K&E branches and distributors in all western states and western Canada. His office is at 2675 Folsom St., San Francisco, Calif.

The partners of Parson, Brinckerhoff, Hall & Macdonald announce a change in the firm name to **Parsons, Brinckerhoff, Quade & Douglas,** Engineers. Offices are at 165 Broadway, New York 6, N. Y.

Joseph W. Guyton (Jr. member ITE) has recently joined the traffic engineering section of **Harland Bartholomew and Associates** in their St. Louis, Mo. office.

Ugo Galassi of Milan, Italy has been elected president of the **Underwood Corporation** and Guido Lorenzotti vice president. This is a result of the recent acquisition by Olivetti of a substantial interest in Underwood.

John H. Brinker has resigned his post as vice president and general manager of the Permaglas Division of the A. O. Smith Corp. to become executive vice president and a director of the J. I. Case Co., Racine, Wis., manufacturer of farm and construction machinery. He will head the staff of key executives who comprise the Case management group and will report directly to Marc B. Rojtman, president, who said in commenting on Brinker's appointment:

J. H. Brinker

"I have been seriously looking for an executive vice president of the Case Company for over two years, and John Brinker fills our staff requirements admirably. He is a man of outstanding abilities and performance record. With Brinker heading our hard-hitting Case management group, we have every reason to believe that the J. I. Case Co., will establish new sales and earnings records for many years to come."

Charles W. Hedden is now district manager in the states of Kentucky, Tennessee, Georgia, Alabama and Mississippi for the **Galion Iron Works & Mfg. Co.,** Galion, Ohio.

Ralph L. Gray has been elected chairman of the board of **Armco Steel Corp.,** Middletown, Ohio. Logan T. Johnston, executive vice president of the company, has been chosen to succeed Gray as president.

Greenlee Tool Co., Rockford, Ill., has assigned three factory-trained men to sales territories: Gene Seymour, working out of Merriam, Kans., will cover Nebraska, Kansas and Missouri; Bill Farley, with headquarters at Metairie, La., will be responsible for Arkansas, Louisiana, Mississippi and Alabama; and Bill Brasmer, working out of Minneapolis, Minn., will cover the States of North and South Dakota, Minnesota, and Iowa as well as northern Wisconsin, and the Upper Peninsula of Michigan.

L. D. Matter, formerly chief engineer of the Water Supply Section of the Pennsylvania Department of Health, has joined the staff of **Albert & Friel Inc.,** Consulting Engineers, Philadelphia, Pa., as Harrisburg representative. His headquarters will be at 2536 Lexington St., Harrisburg, Pa.

Word has been received of the death of Robert Emmett McDonnell, cofounder with Clinton S. Burns of the consulting engineering firm of Burns & McDonald, Kansas City, Mo., on April 1, 1898. Mr. McDonnell, who was 88 years of age at the time of his death, retired from the firm in 1948 on the 50th anniversary of its founding.

Waukesha Motor Co. of Waukesha, Wisc., has named R. A. D'Amour to the post of assistant sales manager.

Louis R. Howson, senior partner of the Chicago consulting engineering firm of **Alvord, Burdick and Howson,** has been named the "Chicago Civil Engineer of the Year, 1959" by the Illinois Section of the American Society of Civil Engineers. He was cited for "excellence in his profession, leadership in the society, and for his humanities."

The Benjamin E. Beavin Company, Consulting Engineers of Baltimore, Md., announces that V. B. Bandjunis, formerly Public Works Officer U. S. Navy, Chelsea, Mass., has joined its staff.

Nordberg Mfg. Co., Milwaukee, Wis., announces the appointments of Harold N. Propp as assistant western branch manager in San Francisco, Eugene T. Daum as sales engineer in the St. Louis office, and Donald E. Byrnes as assistant sales engineer in the Dallas office.

Richard T. "Red" Ryan has been appointed advertising and sales promotion manager of **Hauck Manufacturing Co.,** Brooklyn 15, N. Y., manufacturers of industrial oil and gas burners and related equipment.

Paul D. Williams has been named manager of marketing administration for **General Electric** Communication Products Department's national headquarters at Lynchburg, Va.

D. F. Jurgensen has been named vice president-general manager of the Construction Equipment Division of **Blaw-Knox Co.,** Pittsburgh, Pa., suppliers of a complete line of equipment for construction of concrete and bituminous streets, highways and airports, and for the production of ready-mix concrete. In the same move, Wendell F. Simmons was appointed division general sales manager.

J. D. Hitch, Jr., president of **Dorr-Oliver Incorporated,** Stamford, Conn., has been appointed chairman of the company's board of directors. L. R. Boling, executive vice president named to succeed Mr. Hitch as president, will continue as chief executive officer of the internationally-known engineering concern. Dr. John V. Dorr and Wm. L. Oliver continue as Honorary Chairman and Vice Chairman of the Board, respectively.

Marvin Lane, technical director of **Graver Water Conditioning Co.,** New York, N. Y., a division of Union Tank Car Company, succeeds H. T. Sulcer (resigned) as general manager of that division.

The appointment of Wesley E. Gatewood as a director of field sales for Barrett Division of **Allied Chemical Corp.,** New York 6, N. Y., has been announced by G. Peter Oldham, vice president for marketing.

Joseph M. Reitzes has been named technical manager of the Chemical Department of The Permutit Division of **Pfaudler Permutit Inc.,** New York, N. Y.; James E. Quigley, New York district sales manager; and Ervin P. Vogel,

(Continued on page 222)

WORLD'S EASIEST HANDLING CRAWLER

62 gross engine h.p. with 1-yd. loader

Take the controls of a new Oliver Trans-O-Matic OC-96 Loader —and "let the tractor do the talking!"

Power shifting plus power steering (with three types of turns) makes the startling difference! The OC-96 is *so easy* to operate, it simply cannot be compared with older designs on this count—*or any other!*

You sit in a spacious, foam-rubber seat (offset for ideal visibility)...have full-freedom leg room in the wide, flush-deck compartment.

As for the controls, they're practically "in your lap." Levers for *power* steering, *power* reverse and *power* shift are placed directly ahead of the seat. Your arms are in "resting" position all the time. To brake or foot-steer, pedals do the job just as effortlessly.

Easy operation, indeed! The *easiest* you ever had—plus.

NEW! 3 types of power turns—The only crawler its size giving you counter-rotation turns for about-faces in the tractor's own length—also spot turns and gradual turns.

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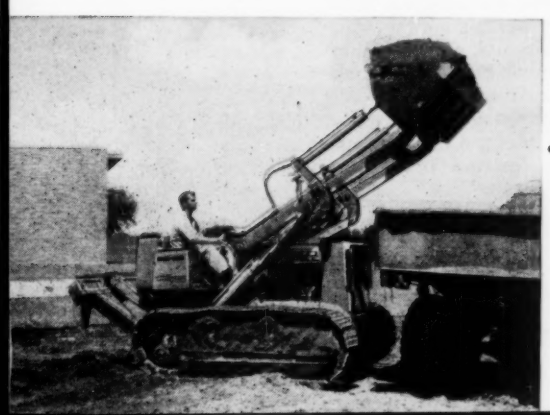
NEW! Torque converter—The OC-96 has heaviest-duty torque converter (not automotive kind)—delivering full engine power for digging and crowding in fastest non-stalling operation. Advanced 62 gross h.p. diesel.

NEW 1-yd. loader design—See how the OC-96 is an *integral* tractor-loader minus high, hung-on parts and cross members. Loader side pedestals are actually part of the tractor for low profile, high stability, finest visibility and safety. Fast breakout, greatest dumping reach. No other its size has such rapid work cycle—is so rapid-reversing.



"Easy operation? Man, this OC-96 is the easiest I've ever seen!" "There has never been a crawler-loader like it for speedy, easy handling," says Lee Bruce of L. H. Bruce and Son, Middleton, Wisconsin.

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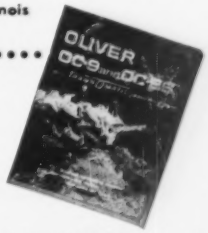

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Modern police departments everywhere — large and small — are making the Harley-Davidson mounted officer the spearhead of their law enforcement. It's a logical choice, for only the Solo can give you truly flexible action — in emergencies . . . criminal apprehension . . . spot traffic control. For a closer look at law enforcement the Solo way, call your Harley-Davidson dealer or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin, for new brochure.

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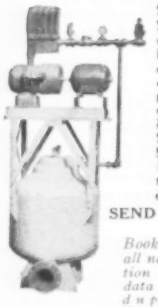

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About People

(Continued from page 208)

sales representative for Brooklyn and Long Island. The advancements are a result of the recently inaugurated expansion plan for the Division's Chemical Sales Department.

We have just received word of the death of Paul V. Townsend, president of Recreation Equipment Corp., Anderson, Ind., and pioneer in the recreation field.

Byron Jackson Pumps, Inc., has moved its southeastern regional headquarters from Greenville, S. C. to Atlanta, Ga., according to word received from Norman D. Jesse, vice-president and general sales manager. M. E. Youngs continues as southeastern regional manager for Byron Jackson; he will headquarter at Room 202, 3131 Piedmont Rd., Atlanta 5, Ga.

Frank T. House has been appointed sales promotion manager and Hermann A. Burkhardt, publicity manager, for **Bucyrus-Erie Co.,** South Milwaukee, Wis. Public relations for the company will continue to be handled by D. W. Harris, who has been vice-president in charge of industrial relations and public relations since 1957.

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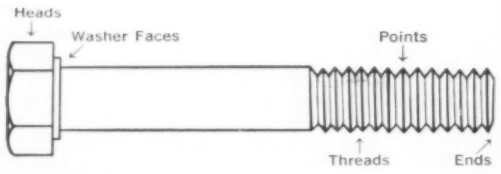

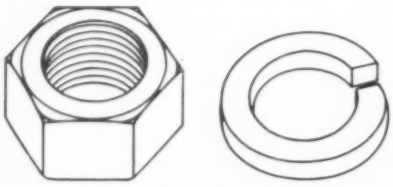

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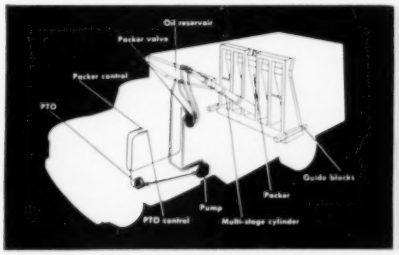
Hydro E-Z Packs save 4 hours per man per day!

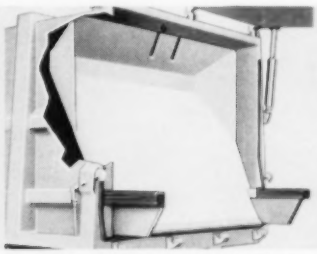
MR. C. E. COULTER
Peoria Disposal Co.

"Eight E-Z Packs handle the load 64 dump trucks carried"–

In Peoria, Ill., the Peoria Disposal Co. makes money with a fleet of 8 Hydro E-Z Packs against tough competition. Loads baled under 76,600 lbs. pressure in the world's most powerful refuse compactor average 5 to 8 tons compared with only about 1200 lbs. carried in the company's old non-compacting bodies. Company President C. Elmer Coulter reports that 8 Hydro E-Z Packs handle 4 times the load 16 dump trucks carried – and save 4 hours a man a day formerly lost on extra trips to the landfill! But see for yourself. See your Hydro E-Z Pack distributor or write us. We'll help arrange a demonstration and send you a free copy of "The Big Squeeze."



Simplest of all disposal bodies with the fewest working parts. No complicated chains, conveyors or whirling knives.



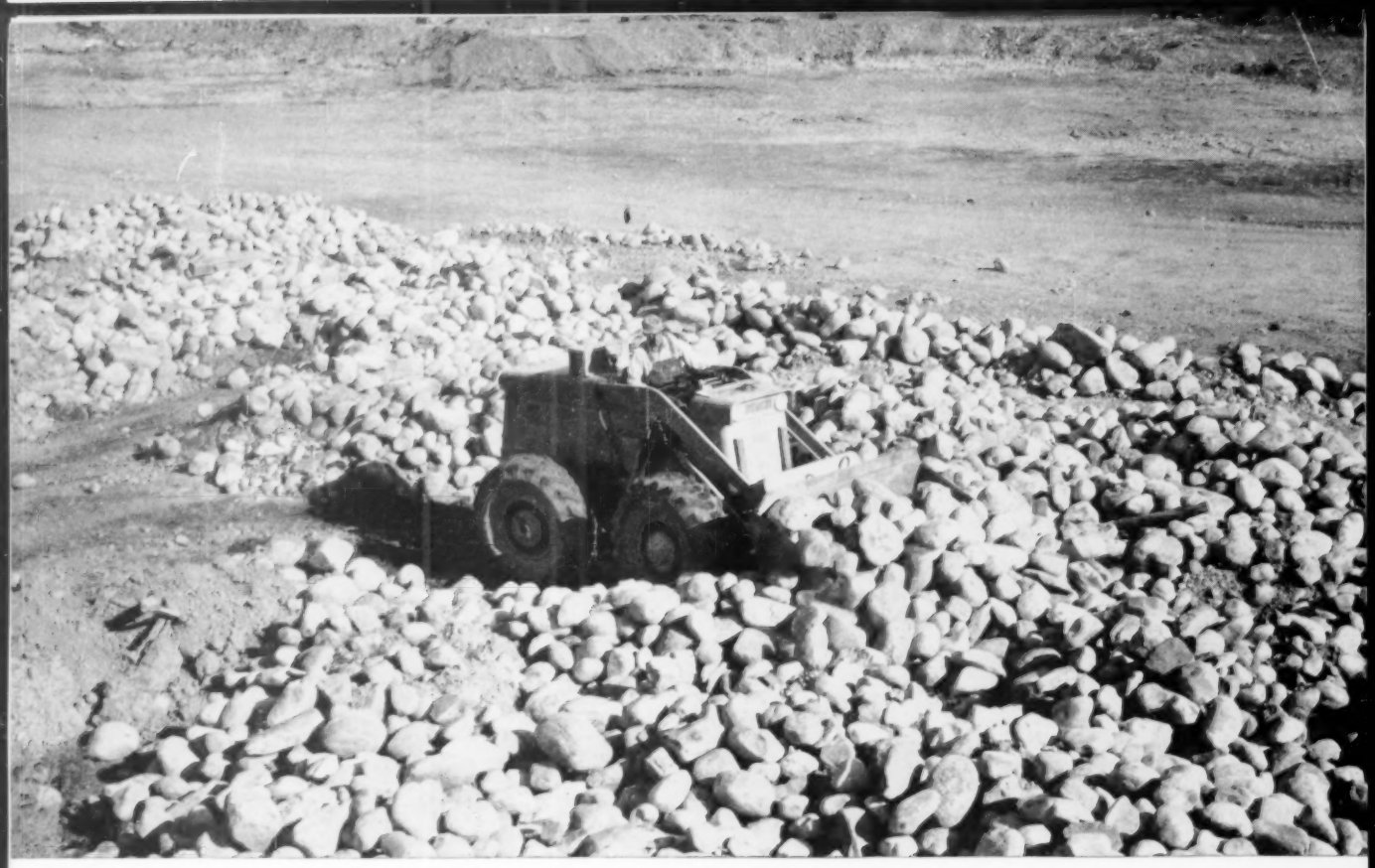
Bulldozer plow travels length of floor for compaction, beyond body for clean unloading of bale. No hoisting needed.

Lower cost with less depreciation since elimination of heavy and complicated mechanism decreases chassis requirements.

Hydro E-Z PACK

HYDRO E-Z PACK®

HYDRO E-Z PACK DIVISION OF HERCULES GALION PRODUCTS, INC., GALION, OHIO – U.S.A.



Cuts costs on rock-loading and other scattered jobs

Canadian city operates two Michigans for $3.70 hourly

By loading rock and other tough materials fast, two Model 75A Michigan Tractor Shovels have substantially cut earthmoving costs in Calgary, Alberta.

The City's two 80 hp 1¼ yd Michigans work for about half as much as the fleet of industrial tractors, belt loader, and 90 hp crawler-loaders they replaced. They waste less time between jobs, too.

Take the pictured task as an example.

On one of its typical "tough jobs," Michigan picks up boulders (big picture), loads them into trucks (above) for haul to river dike.

Michigan speeds to job

Here, a fleet of trucks was waiting to start hauling rock for river dike construction. Obviously, this was a loading job much too tough for industrial tractors. Also, the pit was too far away for a crawler to be trucked in soon. So, the call went out for one of the Michigans.

The closest one drove in rapidly from a gravel pit. Its four-wheel-drive and 8,000 lb lift capacity paid off immediately. Two minutes, four passes, heaped each 5-yard (3 ton) truck. At this rate, the boulder-handling job was soon over . . . and the Michigan in minutes was driven back to its original assignment. Waste time was minimized . . . costs per hour decreased . . . the City's $8,500,000 public works budget (for 215,000 people) stretched.

7,375 working hours: 98.9% availability

Two and a half years operation of this type—heavy jobs, light jobs, freezing cold, dust, rain, road-building, snow-plowing, dirt-salt-gravel loading, etc, etc—7,375 Michigan working hours in all—have cost the City of Calgary only $13,619—an average per hour of $1.85 (including fuel, lubrication, tires, repairs, and depreciation).

Remember, this cost averages all sorts of jobs, *including* rock-loading! (Operators wages are not included; the City charges this cost to the department as a whole, not to a specific machine.)

Even if you *do* include wages against the Michigans, we're sure you'll agree they are being operated very reasonably. Could Michigan's speed, mobility, and ruggedness help you? We'll be glad to demonstrate so you can judge for yourself. See your Michigan Distributor to arrange a date. His name, address and phone number are listed in your regional construction magazine.

Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division

CLARK® EQUIPMENT

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